AMERICAN SOCIETY OF CIVIL ENGINEERS

PROCEEDINGS

VOL. 55 MAY, 1929 NO. 5

SOCIETY AFFAIRS

MILWAUKEE CONVENTION

The coming Summer Meeting of the Society will be known officially as the 59th Annual Convention. The location for the meeting is fortunate; Milwaukee members will be hosts to the Society, July 10 to 12, 1929. Present anticipations of the sessions denote a program of wide interest to all civil engineers.

According to the Constitution, the Convention is the occasion for the Annual Presidential Address. The main or general meeting, July 10, will be devoted to this interesting event, followed by a technical session in which the entire meeting will co-operate. The discussion will be devoted to the broader engineering and economic phases of rail and water development in the United States. On the second day of the Convention, as is customary, a number of simultaneous Division Meetings will be held, at which a variety of topics of importance to the profession will be discussed. It is expected and hoped that programs will be arranged by the Waterways, City Planning, Highway, and Power Divisions.

While it is too early to state definitely the topics and speakers at the individual sessions, it is known that the Waterways Division contemplates a program that will develop in considerable detail the engineering features of inland waterway transportation. Still another meeting that has been tentatively outlined is that of the Highway Division. Preliminary plans for this call for a continuation of the discussion on the Equitable Distribution of Motor Vehicle License Fees and Gasoline Taxes for Highway Purposes.

At a Summer Meeting the social features and entertainments are always of interest. All the details for these events are being elaborated by the Milwaukee Committees. It is certain that they will furnish an attractive program to members and the ladies of their families. It is to be hoped that many will take advantage of the opportunity to spend a part of their summer vacation in attending the Milwaukee Meeting. Its central location and accessibility by rail and water should prove a great convenience.

The main event of the social program will be on the last day of the Convention, when technical sessions will be abandoned, and the entire meeting will go on an excursion to one or more of the many fascinating engineering and industrial activities about Milwaukee. This trip is always a gala experience and provides a suitable conclusion to the entire meeting.

During June the official program of the Convention will be issued to all members, at which time specific arrangements for the various sessions will be announced. Milwaukee expects to be host to an enthusiastic group of engineers July 10 to 12, 1929.

ECONOMICS OF HYDRAULIC DEVELOPMENT

Two bulletins recently issued by the Division of Engineering and Irrigation, California Department of Public Works, are of interest to all engineers who are students of the economic and financial aspects of hydraulics.

One of these reports on "The Control of Floods by Reservoirs" is known as

Bulletin No. 14, and presents an original method of operating conservation reservoirs co-ordinately for flood control without materially impairing the conservation values. Rules for such operation are illustrated by four California streams.

The second pamphlet, "Report on Kennett Reservoir Development", is an analysis of methods and extent of financing by electric power revenue. It is known as *Bulletin No. 20* and deals with the financial advantages from five different methods of treatment ranging from private financing and operation of the reservoir, dam, and power plant to complete State ownership and operation, including transmission and distribution systems, with the power retailed to the public.

Engineers interested in these publications may obtain them on application to Edward Hyatt, M. Am. Soc. C. E., State Engineer, Sacramento, Calif.

STANDARDIZATION OF CAST-IRON PIPES

One of the standardization studies in which the Society is co-operating under the auspices of the American Standards Association, consists of the study of specifications for cast-iron pipe and special castings. A recent report of the Sectional Committee covering this topic outlines the progress to date.

Dividing the general subject into various sub-topics has enabled sub-committees to concentrate on their allotted subjects. Various committees, for example, cover the general question of dimensions, including the barrel of sand-cast pipe, the bell and spigot, all types of pipe other than sand-cast, and, finally, the fittings. Another large group of topics deals with the general questions of metallurgy, processes, and tests. It includes the raw materials and melting practices; metallurgy and chemistry; physical tests; and experience. A third general study is under the heading of Corrosion and Protective Coatings. This covers the theory of corrosion, organic coatings (as bitumens), inorganic coatings (as cement), water corrosion, soil corrosion, and hydraulics.

In conjunction with the work of the Committee, a number of systematized experiments are being carried on at Iowa State College, at the University of Illinois, and at the Massachusetts Institute of Technology. These cover trench load tests, laboratory strength tests, and tests on water corrosion.

All told, the Committee has been able to collect about $60 000 for its program. Most of this has been contributed by the producers. Engineers in municipal work in particular will profit by these tests. The Society's representative on this work is F. H. Stephenson, M. Am. Soc. C. E.

LEHIGH AIRPORTS COMPETITION

A vast development of aeronautics is under way in the United States, as must be apparent from the increasing notice accorded this field in the daily press. One of the elements that closely concerns the civil engineer professionally—and practically the only one—is the design and construction of airports. These are considered of utmost importance and hence the civil engineer is taking quite a large place in the comprehensive plans now under study.

One of the indications of the current tendency is the establishment of an airports competition by the Lehigh Portland Cement Company. This provides prizes amounting to $10 000 to be distributed in engineering and architectural competition for the design of airports.

Clearly, air traffic can grow no faster than the extension of adequate ground facilities. Airport development on the other hand has begun to assert a powerful influence on other fields of public activity. To give an idea of the extent of the present trend, it is estimated that 1 000 airports were under construction in February, 1929, and that about 1 000 more were under consideration.

The Lehigh Portland Cement Company estimated that possibly $300 000 000 may be spent within the succeeding twelve months without the guidance of any sound experience. It is to remedy this situation that the competition is instituted. The program itself is divided into sections of architecture, city planning, engineering, and aeronautics. The engineering section is under the direction of the following members of the Society, Morris Knowles, Francis Lee Stuart, Gavin Hadden, Harold M. Lewis, and Willard T. Chevalier.

This Lehigh Airports Competition which will crystallize the thoughts of planning experts, will close in November, 1929. Interested members may obtain a descriptive booklet of the project direct from the Lehigh Portland Cement Company, Allentown, Pa.

APPOINTMENTS OF SOCIETY REPRESENTATIVES

Among the various recent appointees to represent the Society are the following:

Society Representatives on Advisory Council in Reference to Co-Ordination of Federal Map-Making Efforts: T. P. Pendleton, M. Am. Soc. C. E.

Society Representative at Memorial Service to be Held in Honor of Marshal Foch, under the Auspices of the National Security League: William Barclay Parsons, Hon. M. Am. Soc. C. E.

Society Representative at the Twenty-Fifth Anniversary Banquet in Honor of Dean Anson Marston, President, Am. Soc. C. E., at Ames, Iowa, on April 11, 1929; C. C. Williams, M. Am. Soc. C. E.

STUDIES FOR NICARAGUAN CANAL

One of the important accomplishments, as far as engineers are concerned, of the 70th Session of Congress, just closed, was the adoption of the Edge resolution. This authorizes an investigation and survey to ascertain the practicability and approximate cost of constructing and maintaining additional locks and other facilities at the Panama Canal; it further institutes studies toward similar investigations regarding the feasibility and cost of an interoceanic ship canal across Nicaragua. This latter project is the long considered "Nicaraguan Canal".

The chief purpose of this law is to provide an engineering study of the entire interoceanic canal problem and to bring all existing data up-to-the-minute. It is now almost thirty years since any previous comparable study by a competent engineering board was made.

Among the specific details regarding the Nicaraguan project which the Commission is directed by the Act to secure, is included "information respecting (1) the most practical route for an interoceanic ship canal across the Republic of Nicaragua by way of the San Juan River and the Great Lake of Nicaragua, or by way of any other route over Nicaraguan territory, including suitable locations for harbors at each of the termini thereof; (2) the practicability and approximate cost of constructing and maintaining such canal; and (3) the approximate cost of acquiring all private rights, properties, privileges, if any, included in, or necessarily affected by, such canal route."

Another Section of the Act authorizes the Chief of Engineers to establish and maintain stations for collecting data on available water supply. The necessary appropriation for the work is placed at $150 000, and a time limit of two years is set for the ensuing report with recommendations.

MARCH SOCIETY MEETING

In accordance with the By-Laws, a regular Business Meeting of the Society was held on March 20. As there was no official business of the Society to transact, and no business was offered from the floor, the meeting adjourned after brief announcements.

Following this Society meeting, Robert Ridgway, Past-President, Am. Soc. C. E., delivered an address before the New York Section on "The Boulder Canyon Project". His talk was illustrated by lantern slides, and brought forth a number of comments of approval from a large and enthusiastic audience.

INTERNATIONAL CONGRESS OF STEEL CONSTRUCTION

According to a preliminary announcement, an International Congress of Steel Construction will be held at Liége, Belgium, during the summer of 1930, in connection with the "International Exposition of Leading Industries, the Sciences and Their Application, and Ancient Walloon Art". While the exact date is not determined, it is known that it will cover four days sometime between August 15 and September 15.

It is anticipated that American engineers and manufacturers will be well represented. The program will cover the various phases of the steel industry, including materials, shapes, connections, corrosion, wind pressure, examination of existing structures, special structures, etc.

Doubtless more complete details will be available as the program develops. This early announcement will enable interested members to plan in advance on attending or taking part in this Congress. The official organization is known as "Congrès International de la Construction Métallique", and has headquarters at 4 Place Saint Lambert, Liége, Belgium.

ENGINEERING ABSTRACTS

Valuable Publication of British Institution of Civil Engineers Made Available to Society Members

Attractive Subscription Offered

A valuable opportunity becomes available to members through an arrangement recently consummated with the Institution of Civil Engineers (Great Britain), whereby one of its noted publications, "Engineering Abstracts", may be purchased at attractive terms by members of the Society. The present arrangement follows negotiations and exchanges of views covering several months. These were instituted by the Board of Direction and have received the hearty co-operation of the Council of the Institution of Civil Engineers.

To American engineers who are familiar with engineering literature, particularly that published abroad, "Engineering Abstracts" holds a peculiar position of high esteem. It represents a compilation on the part of authoritative reviewers and with the sanction of a leading Engineering Society, covering publications throughout the civilized world. It is published, of course, in English, and thereby becomes of all the greater value to American readers. Further, it covers all the more important sources of information both official, institutional, and private.

All Topics Covered

For the benefit of the member who has not had the good fortune of studying "Engineering Abstracts", a brief description will be of service. As an illustration, the recent issue of January, 1929, is taken. Following the publication notes and list of Society officers, is given a general table of contents showing the logical arrangement of the 354 abstracts. In brief, these appear, as follows: I.—Measurement and Instruments (20 abstracts); II.—Engineering Materials—Properties, Testing, Manufacture, Preservation, etc. (50 abstracts); III.—Structures—Mass Structures, Framed Structures, and Construction (58 items); IV.—Transmission and Distribution of Energy—Motors, Engines, Generators, Turbines, etc. (83 items); V.—Mechanical Processes and Appliances—Machines, Manufacturing, Tools, Conveying, etc. (32 items); VI.—Specialized Engineering Practice—Transportation, Sanitation, Mining, Communication, etc. (111 items); VII.—Economics and Miscellaneous (10 items).

Then follows a list of the various publications reviewed, 150 or more in number. Next, and immediately preceding the abstracts proper, appears a roster of eminent engineers who have contributed in formulating the reviews.

Reviews Are Practical

The abstracts themselves occupy about 225 pages, thus providing somewhat more than three-quarters of a page, on the average, for each topic. Where necessary, diagrams are included. Also essential tabulations are printed. Quotation of mathematics is notably minimized, and yet not to the detriment of the articles.

In looking over the reviews one is struck with the practical aspect, apparently resulting from the frame of mind of the reviewer in attempting to furnish essential details rather than generalities. For this reason these synopses will doubtless give the exact information many a busy reader may require. If not, they certainly will convey a very definite idea whether he would find the further information required in the original. American periodicals and projects receive generous consideration. From this angle alone, "Engineering Abstracts" should prove of inestimable value.

The indexing is of interest. In the front of the book appears the general arrangement subdivided into numerous topics. From this alone the necessary reference should be found readily. In addition, 11 pages of detailed index are given at the end, divided by subject and by author. Certainly, the use of these abstracts will not suffer from lack of intelligent descriptive means.

Subscription Nominal

"Engineering Abstracts" are issued quarterly—January, April, July, and October, usually toward the end of the month. The basis on which subscriptions of Society members are accepted is at the rate of $5 per annum, duty and post paid. Payments are to be made direct, in advance as it is not feasible to charge them to Society accounts or under any system of deferred payment.

In the future the rate will apply to yearly subscriptions only and not for fractions of the year. For the current year, however, *pro rata* subscriptions will be accepted. Due to forethought on the part of the Institution of Civil Engineers, extra copies for the first two numbers of 1929 have been put aside so that members who so desire may avail themselves of the new arrangement covering the entire year 1929.

Society Cordiality

It is to be noted that the special rate of subscription is considerably less than that regularly available to non-members of the Institution, although it is somewhat more than members themselves pay. The terms, therefore, are a generous indication of a warmth of feeling existing between the two Societies. Inasmuch as the entire matter is conducted upon the basis of individual subscriptions as between the Institution and members of the Society, the Society will hardly appear in the transaction. Yet it is not to be forgotten that the plan results from a cordiality extended to the entire organization as a body. The organization is thus the gainer and should feel a deserved gratitude.

It is suggested that in ordering, members adopt the form of transmittal along the lines here given. This is arranged for convenience in forwarding subscriptions for the whole, or for the remainder, of the year 1929. "Engineering Abstracts" may then be expected by mail direct from the agents of the Institution of Civil Engineers.

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GRADE MARKING OF LUMBER

A development intended to make the purchase of lumber more dependable is now being used increasingly by manufacturers; it consists in stamping each individual piece with a mark designating its particular grade.

The general public is not familiar with the distinction between, or the differing uses for, the various qualities. Even engineers sometimes make mistakes to their sorrow. Lumber is not just "any kind of wood."

With the older custom of buying practically all lumber locally, where the species and grades were well known, and recognized, there was little necessity for the safeguard of grade marking. Now, however, lumber comes from a distance, oftentimes from the other side of the country, and, therefore, it becomes a necessity to distinguish between the various woods and their properties.

Still another difficulty has been in the mixing of various grades following the handling and rehandling of the material between the mill and the user. When each piece is marked, this danger is provided against.

The present program now adopted by the National Lumber Manufacturers Association has been sponsored by the National Committee on Wood Utilization. The Society is represented on a Sub-Committee on Grade Marking, by F. O. Dufour, M. Am. Soc. C. E. It is felt that the adoption of the plan will simplify and promote a greater utilization of forest products, and that it will prevent exportation or unfair competition. Information regarding the details and scope of this development are given in full in a pamphlet entitled "Grade Marking of Lumber", which may be obtained from the Superintendent of Documents, U. S. Government Printing Office, Washington, D. C., at ten cents per copy.

Local Sections*

Cleveland.—March 5, 1929. At this meeting of the Section various business matters of local importance were transacted. Committee reports and a report on the status of the bill before the Legislature relative to the licensing of engineers were presented. Attendance 20.

Colorado.—February 28, 1929. A regular dinner meeting of the Section, to which the ladies were invited, was held at the Engineers' Club in Denver. President W. W. Curtis introduced A. M. Meyers, Chief Engineer of the Kansas City Structural Steel Company, who spoke on the erection of the Grand Canyon Highway Bridge at Lee's Ferry, Ariz. Mr. Meyers illustrated his talk with motion pictures depicting the problems encountered in the erection of this structure. Attendance 72.

March 13, 1929. A dinner meeting of the Section was held at the University Club in Denver. Dr. Elwood Mead, Commissioner of Reclamation, Washington, D. C., spoke on the proposed Boulder Dam and presented many interesting facts concerning the economic aspects of the work. B. W. Steele, Engineer on Dams, U. S. Bureau of Reclamation, then read a paper entitled "Better Concrete and How to Obtain It". In conclusion, Messrs. Walter Young, of Ellensburg, Wash., F. A. Banks, of Nyssa, Ore., Ralph Lowry, of Augusta, Mont., and Homer J. Goult, of Orland, Calif., Construction Engineers, U. S. Bureau of Reclamation, contributed to the discussion by various descriptions of good concrete in connection with their work for the Bureau. Attendance 80.

Connecticut.—March 8, 1929. A dinner meeting of the Section was held at the University Club in Hartford. Mr. C. C. Elwell spoke in tribute to the late F. S. Curtis, Past-President, Am. Soc. C. E., after which Charles E. Smith, Vice-President of the New York, New Haven and Hartford Railroad Company, gave a talk on "Some Engineering Problems in Railroading". He explained the prominent part taken by the engineer, civil, mechanical, and electrical, in the construction and development of the modern railroad. Attendance 18.

Georgia.—March 4, 1929. A short business meeting of the Section was held, after which Mr. J. Houstoun Johnston gave an interesting report on the Annual Meeting of the Society held in New York, N. Y., in January. Mr. C. C. Whitaker then led a discussion on "Registration and Licensing of Engineers in Georgia", giving a résumé of registration laws in existence at the present time. Attendance 14.

Los Angeles.—March 13, 1929. The regular monthly meeting of the Section was dedicated to the Past-Presidents who have held office since the founding of the Section in 1914. Mr. J. B. Lippincott, the First President, told of the formation of the organization and of some of its earlier struggles. He was followed, in turn, by each of the Past-Presidents who spoke of some interesting phases of stewardship.

* For list of Local Section Officers, Rules, etc., see 1929 Year Book, p. 46.

Philadelphia.—March 19, 1929. At a dinner meeting of the Section held at the Engineers' Club, Wallace E. Belcher, Engineer with the United Engineers and Constructors, Inc., addressed the meeting on "The North Station Development, Boston and Maine Railroad." Mr. Belcher described the construction of the station and showed interesting slides illustrating various phases of the construction work. William D. Hill, of the Associated General Contractors of America, discussed the development of the proposed Philadelphia Building Code, and Albert Welchely, of the Brick Manufacturers' Association, gave an illustrated talk on the use of brick and brick masonry. Attendance 50.

Sacramento.—January 22, 1929. Professor Frank P. McKibben, of the General Electric Company, addressed this meeting of the Section on "Paul Revere". Attendance 21.

January 29, 1929. Mr. Drury Butler read extracts from the account by Herodotus of the "Reasons for the Annual Rise of the River Nile". Attendance 29.

February 5, 1929. "The Manufacture of Gas from Crude Oil" was the subject of a paper by W. A. Bahr, Superintendent of Gas Distribution of the Sacramento Division, Pacific Gas and Electric Company. Attendance 36.

February 19, 1929. Charles E. Andrew, Bridge Engineer for the State Division of Highways, read a paper on "Toll Bridges". Attendance 37.

February 26, 1929. A paper on "Some Successes and Future Needs in the Requirement of Funds for Road Building Purposes", was read by William G. Gough, of the State Division of Highways. A paper was also presented on "Hydraulic Development in Irrigation", by T. R. Simpson, of the State Division of Water Rights. Attendance 44.

March 5, 1929. Mr. Fred H. Tibbetts, of San Francisco, addressed the meeting on "The Irrigation Division of the Society", and also told the Section about the dinner in honor of President Hoover given by the Engineers Club of San Francisco on the evening of his inauguration. Attendance 34.

March 12, 1929. A "movie" was shown picturing the tests made on the concrete arch bridge over the Yadkin River, North Carolina, by the Federal Department of Public Roads, the State Highway Commission, and the U. S. Army. Attendance 42.

March 19, 1929. J. Burdette Brown, Irrigation Specialist with the College of Agriculture, the University of California, read a paper on "The Use and Duty of Water in Citrus Culture". Attendance 28.

Student Chapters*

University of Illinois.—March 9, 1929. At an exceptionally large meeting of the Chapter held in the University Auditorium, Dr. Elwood Mead, Commissioner of the Bureau of Reclamation of the United States, spoke on "The Boulder Canyon Dam". Dr. Mead illustrated this interesting subject with motion pictures of the dam. Attendance 1 800.

University of Maine.—At a recent meeting of the Chapter, P. L. Bean, Hydraulic Engineer, gave an interesting lecture on "Storage Problems on the Androscoggin River". Attendance 20.

* For list of Student Chapters, Officers, etc., see 1929 Year Book, p. 52.

Engineering Societies Library

The services of the Engineering Societies Library are available to all members who wish searches, copies, translations, etc., or advice on technical literature. A collection of modern books is also available for loan to members in North America, at moderate rentals. Correspondence should be addressed to the Director, Engineering Societies Library, 29 West 39th Street, New York, N. Y., who will gladly give information concerning the charges for the various kinds of work. A more comprehensive statement in regard to this matter will be found on pages 73 and 74 of the Year Book for 1929.

Book Notices*

(March 1 to March 30, 1929)

Civil Airports and Airways. By Archibald Black. N. Y., Simmons-Boardman Pub. Co., 1929. 238 pp., illus., diagrams, 9 x 6 in., cloth. $4.00.

Information is provided on the selection of the site, the plan and preparation of the field, plan and location of the buildings, repair shop equipment, runway requirements, lighting, and similar practical matters.

Design, Construction, and Maintenance of Docks, Wharves, and Piers. By F. M. Du-Plat-Taylor. Lond., Ernest Benn, 1928. 495 pp., illus., pl., diagrams, 10 x 8 in., cloth. 70s.

This work, based on an experience of thirty years in England, discusses organization and management, forms of docks, dock and wharf walls, jetties, dry docks, machinery, buildings, dredging, construction, and maintenance.

Dictionary of American Biography. Under the Auspices of the American Council of Learned Societies. Edited by Allen Johnson. N. Y., Charles Scribner's Sons, 1928. 20 v., 7 x 10 in., cloth. $250 per set.

Early in the present century there developed among the learned societies of America a serious discussion of ways and means of bringing into being a dictionary of American biography. An organization was effected; Adolph S. Ochs provided $500 000 for editorial work; and actual preparation of copy was begun in 1925. It is planned to include biographies of all former inhabitants of America who have made "some outstanding contribution to the tradition of America." No effort has been spared to make the list of names complete and to include certain classes which are too often neglected in such works. Each biography is written by a competent authority, and the sources for the statements are given. The first volume is a handsomely printed book of 660 pages. The set is planned to be completed in 20 volumes, containing 16 000 biographies.

Economics of Water Power Development. By Walter H. Voskuil. Chic. & N. Y., A. W. Shaw Co., 1928. 225 pp., diagrams, maps, tab., 8 x 5 in., cloth. $3.00.

The author analyzes the factors that govern the economic exploitation of water-power resources. He lays down the principles of water-power economy and of public control of water powers and discusses the various projects for public ownership.

Handbook of Hydraulics. By Horace Williams King. Second Edition. N. Y., McGraw-Hill Book Co., 1929. 523 pp., diagrams, tab., 7 x 4 in., fabrikoid. $4.00.

This book is intended primarily to assist in the solution of hydraulic problems. The new edition extends the application of the Manning formula to flow in pipes. A new chapter on critical depth and hydraulic jump has been added, as well as additional data on natural streams and the measurement of flowing water.

* The statements made in these notices are taken from the books themselves, and this Society is not responsible for them. Unless otherwise specified, the books in this list have been donated by publishers.

Heizung und Lüftung. By Johannes Körting. Berlin, Walter de Gruyter & Co., 1929. 2 v., illus., tab., 6 x 4 in., cloth. 1,50 r.m. each.

This brief review of heating and ventilating installations in dwellings is suited to the needs of builders and owners.

Life of George Chaffey; A Story of Irrigation Beginnings in California and Australia. By J. A. Alexander. Melbourne, Macmillan & Co., 1928. 382 pp., illus., ports., maps, 9 x 6 in., cloth. $10.50. (Gift of Macmillan Company, N. Y.)

George Chaffey arrived in California when irrigation development was in its primitive stages. He founded the Ontario Colony, still a model of success, and devised the system of mutual water companies. Invited to Australia by the Government, he founded the first larger scale developments in that Continent. Returning to the United States, he built the Imperial Valley Works and the Whittier Development.

Maste und Türme in Stahl. By P. Sturzenegger. Berlin, Wilhelm Ernst & Sohn, 1929. 219 pp., illus., diagrams, 10 x 7 in., paper. 23.– r.m.

The author treats of the development and principles of line construction, transmission lines, trolley lines, anchorages and foundations, protection from corrosion, mast transportation and erection.

Profession of Engineering; Essays. Edited by Dugald C. Jackson and W. Paul Jones. N. Y., John Wiley & Sons, 1929. 124 pp., 8 x 5 in., fabrikoid. $1.50.

This collection of essays by noted engineers is designed primarily for the young man choosing a vocation. Starting with discussions of the education of the engineer and of the factors that make for success in engineering, various authors describe the main branches of the profession.

Sewerage; The Designing, Construction, and Maintaining of Sewerage Systems and Sewage Treatment Plants. By A. Prescott Folwell. Tenth Edition. N. Y., John Wiley & Sons, 1929. 399 pp., illus., diagrams, tab., 9 x 6 in., cloth. $4.50.

In this new edition little of the original work remains but the general principles of sewerage systems. It aims to give a condensed presentation of the best practice in designing and constructing sewerage and sewage treatment plants.

Die Theorie der Gewichtsstaumauern. By K. Kammüller. Berlin, Julius Springer, 1929. 60 pp., diagrams, tab., 9 x 6 in., paper. 5.40 r.m.

This is a theoretical investigation into the strength of gravity dams. The topics treated include uplift, pressure conditions, stresses, and the position of the expansion joints.

Vibration Problems in Engineering. By S. Timoshenko. N. Y., D. Van Nostrand Co., 1928. 351 pp., 9 x 6 in., cloth. $4.50.

This exposition of the fundamental theory of vibrations has special reference to the balancing of machines, the vibrations in turbines and in railroad track and bridges, and the whirling of rotating shafts.

Wege und Ziele des Deutschen Museums. By W. Von Dyck; **Heinrich Hertz.** By J. Zenneck. (Deutsches Museum. Abhandlungen und Berichte, Heft 1 und 2.) Berlin, V. D. I. Verlag, 1929. Heft 1, 30 pp.; Heft 2, 36 pp., illus., ports., 8 x 6 in., paper. 1.–r.m. each.

These pamphlets are the first two numbers of a bi-monthly publication. The first contains an account of the beginnings of the Deutsches Museum. The second is devoted to an account of the life and work of Heinrich Hertz.

Widerstandsmessungen an Umströmten Zylindern von Kreis- und Brückenpfeilerquerschnitt. By F. Eisner. (Mitteilungen der Preussischen Versuchsanstalt für Wasserbau und Schiffbau. Berlin. Heft 4.) Berlin, Julius Springer, 1929. 98 pp., illus., diagrams, tab., 11 x 8 in., paper. 10.–r.m.

This is an experimental contribution to the question of the resistance to motion of solids in liquids. It is the first part of a comprehensive, systematic investigation of the resistance of structures resembling bridge piers in open channels, and of the effect of various shapes upon their resistance.

Current Civil Engineering Literature

Key to Abbreviated References to Publications Indexed*

Abbreviated References.	Publication.	Place.
Am. C. Inst.	*American Concrete Institute, Proceedings* (Y.)	Detroit
A. I. E. E.	*American Institute of Electrical Engineers Journal* (M.)	New York
A. R. E. A.	*American Railway Engineering Association, Proceedings* (Y.)	Chicago
A. S. T. M.	*American Society for Testing Materials, Proceedings* (Y.)	Philadelphia
Am. Soc. C. E.	*American Society of Civil Engineers, Proceedings* (M.)	New York
Am. Soc. Mun. Impvts.	*American Society for Municipal Improvements, Proceedings* (Y.)	New York
Am. W. W. Assoc.	*American Water Works Association, Journal* (M.)	Baltimore
Am. Wood Prs. Assoc.	*American Wood Preservers Association, Proceedings* (Y.)	Chicago
Ann. P. et C.	*Annales des Ponts et Chaussées* (Bi-M.)	Paris
Ann. T. P. Belg.	*Annales des Travaux Publics de Belgique* (Bi-M.)	Brussels
Assoc. Ing. Gand.	*Annales de l'Association des Ingénieurs sortis des Ecoles Spécials de Gand* (Q.)	Ghent
Bost. Soc. C. E.	*Boston Society of Civil Engineers, Journal* (M.)	Boston
Can. Engr.	*Canadian Engineer* (W.)	Toronto
City Plan.	*American City Planning Institute* (Q.)	Boston
Comwlth. Engr.	*Commonwealth Engineer* (M.)	Melbourne
Conc.	*Concrete* (M.)	Chicago
Cornell C. E.	*Cornell Civil Engineer* (M.)	Ithaca
Dock & Harbour	*Dock and Harbour Authority* (M.)	London
Eng.	*Engineering* (W.)	London
Eng. & Contr.	*Engineering and Contracting* (M.)	Chicago
Eng. Inst. Can.	*Engineering Institute of Canada, Journal* (M.)	Montreal
Eng. N. R.	*Engineering News-Record* (W.)	New York
Engr. Soc. W. Pa.	*Engineers' Society of Western Pennsylvania, Journal* (M.)	Pittsburgh
Engr.	*Engineer* (W.)	London
Engrs. & Eng.	*Engineers and Engineering, Engineers' Club of Philadelphia* (M.)	Philadelphia
Gas und Wasser.	*Gas und Wasserfach*	Munich
Gen. Civ.	*Le Génie Civil* (W.)	Paris
Gesund. Ing.	*Gesundheits Ingenieur* (W.)	Munich
Inst. C. E.	*Institution of Civil Engineers Minutes of Proceedings* (Q.)	London
Inst. Mun. & Co. Engrs.	*Institution of Municipal and County Engineers, Journal* (W.)	London
Int. Ry. Cong. Assoc.	*International Railway Congress Association, Bulletin* (M.)	Brussels
Land. Arch.	*Landscape Architecture* (Q.)	Boston
Mech. Eng.	*Mechanical Engineering* (M.), *Journal of the American Society of Mechanical Engineers*	New York
Mil. Engr.	*Military Engineer* (Bi-M.)	Washington
Min. & Metal.	*Mining and Metallurgy* (M.), *American Institute of Mining Engineers*	New York
Mun. N. & W. W.	*Municipal News & Water Works* (M.)	Chicago
N. E. W. W. Assoc.	*New England Water Works Association, Journal* (Q.)	Boston
N. Y. R. R. Club	*New York Railroad Club, Proceedings* (M.)	Brooklyn
Oest. Ing. Arch. Ver.	*Oesterreichischer Ingenieur und Architekten Verein, Zeitschrift* (F.)	Vienna
Power	*Power* (W.)	New York
Public W.	*Public Works* (M.)	New York
Rev. Gen.	*Revue Générale des Chemins de Fer* (M.)	Paris
Ry. Age	*Railway Age* (W.)	New York
Ry. Eng. & Main.	*Railway Engineering and Maintenance* (M.)	Chicago
R. & S.	*Roads and Streets* (M.)	Chicago
Schw. Bauz.	*Schweizerische Bauzeitung* (W.)	Zurich
Sci. Am.	*Scientific American* (M.)	New York
Soc. Ing. Civ. Fr.	*Société des Ingénieurs Civils de France, Mémoires et Comptes Rendus* (Q.)	Paris
Tech. Gemein.	*Technisches Gemeindeblatt* (F.)	Berlin
Ver. deu. Ing.	*Verein deutscher Ingenieure, Zeitschrift* (W.)	Berlin
West. Constr. N.	*Western Construction News* (F.)	San Francisco
West. Ry. Club	*Western Railway Club, Proceedings* (M.)	Chicago
West. Soc. Engrs.	*Western Society of Engineers, Journal* (M.)	Chicago
Zeit. Bau.	*Zeitschrift für Bauwesen* (Q.)	Berlin
Z. d. Bauver.	*Zentralblatt der Bauverwaltung* (W.)	Berlin

* Y = Yearly; Q = Quarterly; M = Monthly; F = Fortnightly; W = Weekly.

B. Applied Mechanics

a. Mechanics of Solids (Strength of Materials)

6. Heterogeneous Solids (Reinforced Materials)

Note on the Design of Certain Structural Members in Reinforced Concrete. Wm. R. Osgood. Feb., '29.

Contribution à l'Etude des Poutres en Béton Armé.* (Contribution to the Study of Reinforced Concrete Beams.) A. Isaacson. Assoc. Ing. Gand. Pt. 4, '28.

Calcul de Fatigues dans Une Section de Béton Armé Soumise à la Flexion Composée.* (Calculations of Fatigues in a Section of Reinforced Concrete Subjected to Compound Flexure.) Pierre Boutry. Gen. Civ. Feb. 16, '29.

b. Hydraulics

1. Processes of Measurement

Electrical Instruments Used in the Measurement of Flow.* W. H. Pratt. A. I. E. E. Feb., '29.

3. Industrial Hydraulics

Characteristics of Centrifugal Oil Pump. Discussion: Morrough P. O'Brien. Am. Soc. C. E. Mar., '29.

Constitution of Water and Nature of Ice. Howard T. Barnes. Discussion: William T. Walker. (Paper read before Power Div.) Am. Soc. C. E. Mar., '29.

Protective Works for Lewiston Hydroelectric Development.* A. G. Darwin. West Constr. N. Feb. 25, '29.

Pumped-Storage Hydro-Electric Plants. Discussion: Oren Reed. Am. Soc. C. E. Mar., '29.

Rocky River Hydro-Electric Development.* Joel D. Justin (Paper read before Power Div.) Am. Soc. C. E. Mar., '29.

Der gegenwärtige Stand des Kreiselpumpenbaues.* (The Present Status of Centrifugal Pump Construction.) C. Pfleiderer. Ver deu. Ing. Feb. 9, '29.

Bedienungslose Wasserkraftanlagen.* (Automatic Hydraulic Power Plants.) U. Vetsch. Schw. Bauz. Serial beginning Feb. 9, '29.

4. Dams

Analysis of Arch Dams by the Dummy Unit Loading Method and the Law of Superposition.* F. W. Hanna. West. Constr. N. Feb. 10, '29.

Dwinnell Hydraulic-Fill Dam.* John A. Beemer. West. Constr. N. Feb. 25, '29.

Load Distribution in High Arch Dams. Discussion: Fredrik Vogt, F. H. Constant, and Robert A. Sutherland. Am. Soc. C. E. Mar., '29.

Maximum Stresses in High Dams.* Ivan E. Houk. West. Constr. N. Feb. 10, '29.

C. Materials of Construction and General Processes

a. Lime, Cement, Mortar, Concrete, Brick, Bitumen, Timber, Gravel, etc.

Concrete Aggregate. Herbert J. Gilkey. Conc. Mar., '29.

Effect of Moorland Water on Concrete. (From paper read before Inst. Water Engrs.) Public W. Feb., '29.

Research Reports Stress Improved Performance.* (Papers read before Am. Conc. Inst.) Conc. Mar. '29.

Study of Mixing Action in Large Concrete Mixers. (From report to Koehring Co., Milwaukee.) Eng. N. R. Mar. 7, '29.

Use of High Early Strength Cement in Highway Work.* Duff A. Abrams. (Paper read before Am. Road Bldrs. Assoc.) Conc. Feb., '29.

Gewährleistung der Güte des Betons.* (Assuring the Quality of Concrete.) Anton Brebera. Oest. Ing. Arch. Ver. Feb. 15, '29.

b. Metals

L'Essai de Traction de Longue Durée des Métaux Soumis à de Hautes Températures.* (Protracted Tensile Tests of Metals Subjected to High Temperatures.) Gen. Civ. Feb. 16, '29.

Die Korrosionen der Metalle.* (Corrosion of Metals.) Cäcilie Fröhlich. Gesund. Ing. Jan. 19, '29.

c. Preservation and Use of Materials, Painting, Waterproofing

Report of Committee on Wood Preservation. (A. R. E. A.) Ry. Age, Mar. 7, '29 (Daily Ed.).

g. Execution of Works, Specifications

1. Of Masonry

Public Conveniences, with Special Reference to that Recently Built at St. Giles Street, Oxford.* W. L. Williams. Inst. Mun. & Co. Engrs. Feb. 19, '29.

Report of the Committee on Masonry. (A. R. E. A.) Ry. Age Mar. 8. '29 (Daily Ed.).

2. Of Concrete

A Condition Survey of Concrete Structures. (From papers read before Am. Conc. Inst.) Conc. Mar., '29.

Concrete's 15-Year Record on New York Subways.* George L. Lucas. Eng. N. R. Mar. 7, '29.

Concrete for Harbor Terminal Placed with Belt Conveyor.* Conc. Feb., '29.

Construction Plant and Methods for Concrete Buildings. (Preliminary Report of Comm. read before Constr. Div.) Am. Soc. C. E. Mar., '29.

Construction—Inspection—Design—Architecture. (Papers read before Am. Conc. Inst.) Conc. Mar., '29.

Design Possibilities *vs.* Present Actualities.* James R. Griffith. Conc. Mar., '29.
When, Why and How Shall We Test. Cloyd M. Chapman. Conc. Mar., '29.

4. Of Metal

Construction Plant and Methods for Steel Buildings. (Report of Comm. read before Constr. Div.) Am. Soc. C. E. Mar., '29.

5. Of Reinforced Concrete

Instructions Relatives aux Ouvrages en Béton Armé.* (Instructions Concerning Reinforced Concrete Constructions.) Assoc. Ing. Gand. Pt. 4, '28.

j. Piles and Pile-Driving

Bond Between Pile Heads and Concrete. (From *Public Roads.*) Eng. Feb. 22, '29.
Construction of James River Bridge Project. R. C. Wilson and Herbert P. Pope. (Paper read before Constr. Div.) Am. Soc. C. E. Mar., '29.

k. Tunnels and Tunneling-Shields

Constructing Zion Park Highway Tunnel.* Public W. Feb., '29.
Driving the Second Cascade Tunnel.* Eng. N. R. Feb. 28, '29.
Excavating Through Cuts by Tunneling and Trapping.* B. H. Henry. (From *California Highways and Public Works.*) West. Constr. N. Feb. 25, '29.
Lehigh Valley Completes Musconetcong Tunnel.* Ry. Age Feb. 23, '29.
Die Vorausbestimmung der Gesteintemperatur im Innern von Gebirgsmassiven.* (The Predetermination of Rock Temperature in the Interior of Mountains.) K. Pressel. Ver. deu. Ing. Feb. 2, '29.

l. Construction Machinery and Tools—Drainage

Commercial Central Mixing Plants for the Manufacture and Sale of Ready Mixed Concrete.* Norman Beggs Conc. Feb., '29.
Construction Plant and Methods for Hydro-Electric Installations. (Report of Comm. read before Constr. Div.) Am. Soc. C. E. Mar., '29.
Aus der neueren Entwicklung der Fördertechnik.* (Recent Developments in Conveying Engineering.) C. Michenfelder. Ver. deu. Ing. Feb. 23, '29.

D. Highways

c. Construction

Report of Paving Commission. (Nat'l Pav. Brick Mfgrs. Assoc.) Public W. Feb., '29.
Pavement Design and Construction.* (Preliminary Report of Comm. on Design & Constr., Cleveland.) Mun. N. & W. W. Feb., '29.
Oil-Treated Highways in Washington. Public W. Feb., '29.
Basic Principles of Curb and Gutter Design.* P. L. Brockway. Public W. Feb., '29 .
Some Considerations in Selecting Roadway Types.* C. N. Conner. (Paper read before County Highway Officials.) Public W. Feb., '29 .
Roosevelt Highway, Southern California.* J. E. Jellick. West. Constr. N. Feb. 10, '29.
Construction Plant and Methods for Highways. (Report of Comm. read before Constr. Div.) Am. Soc. C. E. Mar., '29.
Economic Comparisons of Various Types of Road Surfacing. A Symposium. Discussion: William H. Connell, and Eugene L. Grant. Am. Soc. C. E. Mar., '29.
Street Designing for Various Uses. Discussion: R. D. N. Simham. Am. Soc. C. E. Mar., '29.
Versuche über die Wirkung einiger Betonhärtemittel auf Zementmakadam.* (Experiments on the Effect of Some Concrete Hardeners on Cement Macadam.) R. Grengg. Oest. Ing. Arch. Ver. Feb. 15, '29.
Beitrag zum Aufbau einer Güteziffer für den Beton im Strassebau.* (Contribution on the Development of a Quality Coefficient for the Concrete in Road Building.) Leopold Heinlein. Oest. Ing. Arch. Ver. Feb. 15, '29.
Die gegenwärtigen Probleme des Betonstrassenbaues. (Present Problems in Concrete Road Construction.) E. Probst. Oest. Ing. Arch. Ver. Feb. 15, '29.
Die Herstellung der ersten Solidititbetonstrasse in Oesterreich.* (The Construction of the First Soliditit Concrete Road in Austria.) Otto Korn. Oest. Ing. Arch. Ver. Feb. 15, '29.
Der Strassenunterbau aus Stampfbeton.* (Road Substructure of Rolled Concrete.) Walter Schuloff. Oest. Ing. Arch. Ver. Feb. 15, '29.
Die Oberfläche der Betonstrasse.* (The Surface of the Concrete Road.) Anton Preslicka. Oest. Ing. Arch. Ver. Feb. 15, '29.

d. Maintenance

Concrete Pavement Maintenance.* Lee S. Trainor. Conc. Feb., '29.
Highway Maintenance. R. M. Smith. Eng. Inst. Can. Feb., '29.
Road Surfaces in Relation to a Standard of Maintenance. H. V. Overfield. Inst. Mun. & Co. Engrs. Feb. 19, '29.
Street Maintenance Committee Report. (Comm. Report on Main. Cleveland.) Mun. N. & W. W. Feb., '29.

g. Machinery and Tools

Finishing Machine Lays Asphalt in Oklahoma.* Dudley A. Wood. Eng. N. R. Mar. 7, '29.
Trend in the Design of Road Machinery. S. T. Henry. (Paper read before Am. Road Bldrs. Assoc.) Can. Engr. Feb. 12, '29.

h. Vehicles, Automobiles, Traffic

Pavement Surfaces for 40 000 000 Vehicles.* Paul E. Kressley. Conc. Mar., '29.
Problems of Traffic Regulation and Control. Leslie G. Holleran. Discussion: E. W. James. (Paper read before Highway Div.) Am. Soc. C. E. Mar., '29.
Traffic on City Streets. (Comm. Report on Traffic, Cleveland.) Mun. N. & W. W. Feb., '29.
La Capacité de Débit des Chaussées pour les Automobiles.* (The Capacity of Roads for Automobiles.) L.-G. Pineau. Gen. Civ. Feb. 23, '29.

E. Bridges, Viaducts and Arches

a. Timber Bridges and Viaducts

Report on Wooden Bridges and Trestles. (A. R. E. A.) Ry. Age Mar. 8, '29 (Daily Ed.).

b. Iron and Steel Bridges and Viaducts

Suisun Bay Bridge to Improve San Francisco Service.* C. R. Harding. (Paper read before Am. Ry. Eng. Assoc.) Ry. Age Mar. 9, '29.

Le Flambement des Arcs.* (The Flaming of Arcs.) E. Baticle. Gen. Civ. Feb. 2, '29.

Die neue Lindigobrücke bei Stockholm.* (The New Lindigo Bridge at Stockholm.) Z. d. Bauver. Feb. 6, '29.

Skizzenwettbewerb für eine Rheinbrücke bei Ludwigshafen-Mannheim.* (Sketch Competition for a Rhine Bridge at Ludwigshafen-Mannheim.) Ellerbeck. Z. d. Bauver. Feb. 13, '29.

d. Concrete and Reinforced Concrete Bridges and Viaducts

Construction Plant and Methods for Concrete Bridges. (Report of Comm. read before Constr. Div.) Am. Soc. C. E. Mar., '29.

Lovejoy Street Viaduct System, Portland.* Ben A. Eddy. West. Constr. N. Feb. 10, '29.

Precast Concrete Bridge Reconstruction on D. & R. G. W. R. R.* Ralph C. Taylor. West. Constr. N. Feb. 25, '29.

Progress Report of the Special Committee on Concrete and Reinforced Concrete Arches.* Am. Soc. C. E. Mar., '29.

h. Computations, Tests, etc.

Application of Findings. F. E. Schmitt. (Paper read before Struc. Div.) Am. Soc. C. E. Mar., '29.

Elements Affecting Design of Arches. Hardy Cross. (Paper read before Struc. Div.) Am. Soc. C. E. Mar., '29.

Experimental Investigation of Concrete Arches. W. M. Wilson. Discussion: George E. Beggs. (Paper read before Struc. Div.) Am. Soc. C. E. Mar., '29.

Field and Laboratory. F. R. McMillan. (Paper read before Struc. Div.) Am. Soc. C. E. Mar., '29.

Final Report of the Special Committee on Impact in Highway Bridges.* Am. Soc. C. E. Mar., '29.

Revamping Arch Design. George E. Beggs. (Paper read before Struc. Div.) Am. Soc. C. E. Mar., '29.

Verifying Theory. G. M. Braune. (Paper read before Struc. Div.) Am. Soc. C. E. Mar., '29.

Yadkin River Bridge Tests. Clyde T. Morris. (Paper read before Struc. Div.) Am. Soc. C. E. Mar., '29.

F. Inland Waters and Waterways

a. Natural Waterways (General Articles)

Status and Progress in the Art of Waterways Engineering. (Report of Comm. read before Waterways Div.) Am. Soc. C. E. Mar., '29.

c. Regulation of Waterways, Volumes of Discharge, Freshets, Floods, Soundings

Data of a Cloudburst Flood in Roundout Creek.* E. A. Van Deusen. Eng. N. R. Mar. 7, '29.

Stream Flow in General Terms.* Discussion: Melvin D. Casler. Am. Soc. C. E. Mar., '29.

g. Consolidation of Banks, Leakage, Maintenance of Channel, Dredging

Levee Construction in the Reelfoot District.* Public W. Feb., '29.

Revetment and Bank Protection on the Mississippi River.* Public W. Feb., '29.

j. River and Lake Ports, Equipment

Hafenverladung der Zeche "Fürst Hardenberg" der Vereinigten Stahlwerke A.-G. bei Dortmund.* (Port Loading of the "Fürst Hardenberg" Mine of the Vereinigten Stahlwerke A.-G. at Dortmund.) D. P. Schönfeld. Ver. deu. Ing. Feb. 9, '29.

G. Maritime Works

c. Vessels and Maritime Navigation, Lighthouses, Buoys, Various Signals

The P. and O. Turbo-Electric Liner "Viceroy of India." Engr. Serial beginning Mar. 1, '29.

f. Maritime Rivers and Canals, Bank Protection

Report of Committee on Rivers and Harbors. (A. R. E. A.) Ry. Age Mar. 7, '29.

Reforestation in Engineering Works.* O. S. Scheifele. Can. Engr. Feb. 12, '29.

g. Dredges and Dredging. Force Pumps. Refloating and Removing Wrecks. Ice-Breakers

The Salving of the ex-German Battle Cruiser Seydlitz.* Engr. Feb. 22, '29.

i. Harbors

Le Développement du Port de Cherbourg.* (The Development of the Port of Cherbourg.) Gen. Civ. Feb. 9, '29.

Les Travaux d'Agrandissement du Port de Livourne (Italie).* (The Work of Enlarging the Port of Livourne, Italy). Giulio Tian. Gen. Civ. Feb. 23, '29.
Weiterer Ausbau des Stettiner Hafens.* (Further Development of Stettin Harbor.) Z. d. Bauver. Jan. 30, '29.

H. Railroads. Street and Interurban Railways. Automobiles. Aeronautics

a. Railroads

1. General Articles

Modern Concrete Methods Used on D. L. & W. R. R. Improvements.* M. Hirschthal. Conc. Feb., '29.
Report on Relations with Universities. (A. R. E. A.) Ry. Age Mar. 6, '29 (Daily Ed.).
Southern Pacific of Mexico Is Developing a New Frontier.* Raymond Chambers. Ry. Age Mar. 9, '29.
Les Projets de Chemin de Fer Transsaharien et la Mise en Valeur de l'Afrique Occidentale française.* (The Trans-Sahara Railway Projects and the Development of French West Africa.) Jean Boisse de Black. Gen. Civ. Feb. 9, '29.

2. Location

Report on Economics of Railway Location. (A. R. E. A.) Ry. Age Mar. 8, '29 (Daily Ed.).

3. Roadbed (Grading Construction Work)

Report of the Committee on Ballast. (A. R. E. A.) Ry. Age Mar. 6, '29 (Daily Ed.).

4. Track

Controlling an Interlocking from a Remote Point.* W. F. Zane. Ry. Age Mar. 2, '29.
Four-Tracking on New York Central Involves Heavy Work.* Ry. Age Mar. 2, '29.
Reinforced Concrete Sleepers.* D. L. de Veali. (*Revista dei Trasporti.*) Int. Ry. Cong. Assoc. Feb., '29.
Report of Committee on Rail. (A. R. E. A.) Ry. Age Mar. 8, '29 (Daily Ed.).
Report of the Committee on Track. (A. R. E. A.) Ry. Age Mar. 7, '29 (Daily Ed.).
Report of the Committee on Roadway. (A. R. E. A.) Ry. Age Mar. 6, '29 (Daily Ed.).
Report of the Committee on Ties.* (A. R. E. A.) Ry. Age Mar. 6, '29 (Daily Ed.).
Report on Stresses in Railroad Track. (A. R. E. A.) Ry. Age Mar. 7, '29 (Daily Ed.).
Steel and Concrete Ties: Present and Future.* E. E. R. Tratman. Eng. N. R. Feb. 28, '29.
L'Entretien Méthodique des Voies de Chemin de Fer.* (Systematic Maintenance of Way.) R. Campus. Assoc. Ing. Gand. Pt. 4, '28.
Längskräfte im Eisenbahngleis.* (Longitudinal Forces in Railway Track.) Ammann and v. Gruenewaldt. Ver. deu. Ing. Feb. 2, '29.

5. Signals and Safety Apparatus

Burlington Tests Mack Switching Locomotive.* Ry. Age Mar. 2, '29.
Car Retarders Facilitate Operation in New Haven Yard. C. A. Mitchell. (Paper read before A. R. E. A.) Ry. Age Mar. 5, '29 (Daily Ed.).
Economic Study of Boston & Maine Dump Yard. R. J. Hammond. (Paper read before A. R. E. A.) Ry. Age Mar. 5, '29 (Daily Ed.).
Report on A-C Block Signaling. (A. R. E. A.) Ry. Age Mar. 5, '29 (Daily Ed.).
Report of Committee on Contracts. (A. R. E. A.) Ry. Age Mar. 5, '29 (Daily Ed.).
Report of Committee on Grade Crossings.* (A. R. E. A.) Ry. Age Mar. 7, '29 (Daily Ed.).
Report on D-C Block Signaling. (A. R. E. A.) Ry. Age Mar. 5, '29 (Daily Ed.).
Report of Committee on Interlocking. (A. R. E. A.) Ry. Age Mar. 5, '29 (Daily Ed.).
Report on Economics of Signaling.* (A. R. E. A.) Ry. Age Mar. 5, '29 (Daily Ed.).
Report on Overhead and Underground Lines. (A. R. E. A.) Ry. Age Mar. 5, '29 (Daily Ed.).
Report on Signaling Practice. (A. R. E. A.) Ry. Age Mar. 5, '29 (Daily Ed.).
Report on Signals and Interlocking. (A. R. E. A.) Ry. Age Mar. 7, '29 (Daily Ed.)
La Téléséction Automatique par Courants Alternatifs dans les Installations Téléphoniques des Chemins de Fer allemands.* (Automatic Telesection by Alternating Currents in the Telephone Installations of German Railways.) Rev. Gen. Feb., '29.

6. Rolling Stock

Flanges of Locomotive Tyres.* (From *Railway Gazette.*) Int. Ry. Cong. Assoc. Feb., '29.
Freight Car Truck Springs.* T. H. Symington. Ry. Age Mar., '29.
The Heating of Locomotive Axle Bearings.* H. B. Buckle. (From *Railway Engineer.*) Int. Ry. Cong. Assoc. Feb., '29.
Report on Water Service and Sanitation. (A. R. E. A.) Ry. Age Mar. 6, '29 (Daily Ed.).
The Use of Pulverised Fuel on the German State Railways.* Eng. Feb. 22, '29.
Elévateur-Culbuteur pour Distribution de Combustibles.* (An Elevator-Tipper for Distributing Fuels.) Richon. Rev. Gen. Feb., '29.
Die neue Schnellzugslokomotive der Reihe 214 der Oesterr, Bundesbahnen.* (The New 214 Series, Express Locomotives of the Austrian State Railways.) Giesl-Gieslingen. Oest. Ing. Arch. Ver. Jan. 18, '29.
Die Hochdrucklokomotive für 60 at, Bauart "Winterthur."* ("Winterthur" Type 60-Atmosphere High Pressure Locomotive.) H. Brown. Ver. deu. Ing. Feb. 2, '29.

7. Uses of Electricity

Report of Committee on Electricity. (A. R. E. A.) Ry. Age Mar. 7, '29 (Daily Ed.).

8. Stations, Terminals, Engine Houses, Shops

Co-Operation Aids Terminal Operation.* Ry. Age Feb. 23, '29.
Old North Station at Boston Replaced by a Modern Structure Including a Coliseum.* W. E. Belcher. Eng. N. R. Feb. 28, '29.
Report of Committee on Buildings. (A. R. E. A.) Ry. Age Mar. 8, '29.
Report on Iron and Steel Structures. (A. R. E. A.) Ry. Age Mar. 8, '29 (Daily Ed.).
Report on Shops and Locomotive Terminals. (A. R. E. A.) Ry. Age Mar. 6, '29.
Report on Yards and Terminal. (A. R. E. A.) Ry. Age Mar. 7, '29 (Daily Ed.).
Reconstruction des Dépôts de Locomotives du Réseau du Nord après la Guerre.* (Reconstruction of Locomotive Sheds by the Nord System after the War.) Hémery. Rev. Gen. Feb., '29.

10. Accidents
Drei Erdunfälle an Eisenbahnen infolge unzuverlässiger Böden.* (Three Railway Earthwork Accidents Due to Unreliable Foundations.) Karl Backofen. Z. d. Bauver. Feb. 20, '29.
x. Miscellaneous
Report on Rules and Organization. (A. R. E. A.) Ry. Age Mar. 7, '29 (Daily Ed.).

b. Special Railroads

2. Aerial Railroads
Le Nouveau Chemin de Fer Funiculaire de Naples.* (The New Naples Funicular.) Gen. Civ. Feb. 16, '29.

f. Aeronautics

2. Dirigible Balloons
Inside the "Graf Zeppelin."* C. E. Rosendahl. Sci. Am. Mar., '29.
3. Aeroplanes
Planes for Private Flying.* Alexander Klemin. Sci. Am. Mar., '29.
The Development of the Airplane Engine in the United States.* Charles L. Lawrance. Mech. Eng. Mar., '29.

I. Municipal Water-Works. Agricultural Engineering. Irrigation

a. General Articles

Administrative Water Problems. A Symposium. Discussion: G. Clyde Baldwin. Am. Soc. C. E. Mar., '29.
Municipal Water Works Systems and Public Fire Protection. Clarence Goldsmith. Am. W. W. Assoc. Feb., '29.
Status and Progress in the Art of Irrigation Engineering. S. T. Harding. (Paper read before Irrigation Div.) Am. Soc. C. E. Mar., '29.
Der Einfluss von Riesenfeldanlagen auf die Grundwasserverhältnisse der Umgebung.* (The Effect of Irrigation Installations on Ground Water Conditions in the Vicinity.) Friedrich Reinhold. Gesund. Ing. Serial beginning Jan. 5. '29.

b. Hydrology, Water Resources

Die Verwertung artesischer Wässer für die Wasserversorgung der Stadt Mitau in Lettland. (The Use of Artesian Water as a Water Supply for the City of Mitau in Lettland.) G. Thiem. Gesund. Ing. Jan. 5, '29.
Ueber das Mass der Grundwasserbildung und sein Verhältnis zu den messbaren Niederschlagen.* (On the Measure of Ground Water Yield and Its Relation to Measurable Precipitation.) Chr. Mezger. Gas und Wasser, Jan. 12, '29.
Die hydrologischen Vorarbeiten der Stadt Hannover für den Bau eines Grundwasserwerks bei Berkhof.* (The Hydrological Preliminary Work by the City of Hannover, for the Construction of an Underground Water Supply Plant at Berkhof.) Dahlhaus and Hosang. Gesund. Ing. Feb. 9, '29.
Die Ermittlung der Wasserführung von Grundwasserströmungen aus Pumpversuchsergebnissen.* (The Determination of the Flow of Underground Streams from the Result of Pump Tests.) Holler. Gas und Wasser. Feb. 16, '29.

c. Dams and Reservoirs

Concrete Production for the Pardee Dam.* Lewis H. Tuthill. West. Constr. N. Feb. 10, '29.
The O'Shaughnessy Dam and Reservoir.* John H. Gregory, C. B. Hoover, and C. B. Cornell. Am. Soc. C. E. Mar., '29.
Weighted Gate Closes Opening in Multiple-Dome Dam.* Eng. N. R. Mar. 7, '29.
La Protection contre les Affouillements. Essais sur Modeles Reduits du Barrage de Pizançon, sur l'Isere.* (Protection from Toe Erosion. Tests on Reduced Models of the Pizançon Dam on the Isere.) A. Smrcek. Gen. Civ. Feb. 16, '29.
Eine bogenförmige Betonstaumauer in den Vereinigten Staaten.* (An Arched Concrete Dam in the United States.) Haller. Z. d. Bauver. Feb. 6, '29.
Versuchssperre in Gewölbeform am Stevenson-Bach in Amerika.* (Arch-Shaped Experimental Dam on Stevenson Creek in America.) E. Mattern. Z. d. Bauver. Feb. 20, '29.

d. Analysis and Purification of Water

Advantages and Economies of a Combined Water and Power Plant. J. D. Donovan. Am. W. W. Assoc. Feb., '29.
Chlorination of Coagulated Water.* J. S. Whitener. Am. W. W. Assoc. Feb., '29.
Chlorination of Deep Well Supply for Taste and Odor Removal. M. F. Trice. Am. W. W. Assoc. Feb., '29.
Ground Water Substituted for Filtered Water. E. T. Archer. Am. W. W. Assoc. Feb., '29.
Mechanical Agitators for the Knoxville Water Works.* W. W. Mathews. Am. W. W. Assoc. Feb., '29.
Water Works and Sewerage Systems. A. E. Berry. Can. Engr. Feb. 12, '29.
Bestimmung im Wasser gelösten Sauerstoffes. (Determination of Oxygen Dissolved in Water.) Bach. Gesund. Ing. Jan. 19, '29.
Die selbsttätige Schutzschichtbildung durch kaltes Wasserleitungswasser in eisernen Rohren.* (The Spontaneous Formation of a Protective Layer by Cold Piped Water in Iron Pipes.) J. Tillmans and others. Gas und Wasser. Serial beginning Jan. 19, '29.
Wirtschaftliche Ausnutzung von Absitzraum-Querschnitten zweistöckiger Frischwasser-Kläranlagen.* (Economic Utilization of Settling Chamber Cross-Sections of Two-Story Fresh Water Clarification Plants.) F. Preuss. Gesund. Ing. Jan. 19, '29.
Wasserstein im heissen und kalten Wasser.* (Scale in Hot and Cold Water.) Max Groeck. Gesund. Ing. Feb. 16, '29.
Infektion und Disinfektion einer städtischen Zentralwasserleitung.* (Infection and Disinfection of a City Water Main.) E. G. Dresel ad Otto Stickl. Gesund. Ing. Feb. 23, '29.

e. Distribution of Water

Financing Extensions of Water Mains.* N. B. Jacobs and Charles L. Fox. Am. W. W. Assoc. Feb., '29.
Irrigation Works in the Bombay Deccan and the Bhandardara and Bhatgar Dams.* E. Copeland Snelgrove. Eng. Serial beginning Mar. 1, '29.
Intakes in Lake Ontario for the City of Hamilton Water Supply.* H. S. Philips and James Stodart. Eng. Inst. Can. Feb., '29.
Maintenance of Meters.* Frank J. Murphy. Am. W. W. Assoc. Feb., '29.
Some Unusual Conditions Discovered Through Pitometer Water Waste Surveys. H. E. Beckwith. Am. W. W. Assoc. Feb., '29.
Use of Water on Federal Irrigation Projects.* E. B. Debler. Am. Soc. C. E. Mar., '29.

J. Sewerage. Sewage and Refuse Disposal

a. Sewers and Drains

Methods of Handling Quicksand in Sewer Construction. A. P. Learned. Eng. N. R. Mar. 7, '29.
Pressure Outfall Sewers and Pumping Plant, San Rafael.* H. K. Brainerd. West. Constr. N. Feb. 25, '29.

b. Sewage Disposal, Purification

A Few Details of Sewage Treatment in Germany and England.* Samuel A. Greeley. Mun. N. & W. W. Feb., '29.
A New Type of Sewage Screen.* Engr. Feb. 15, '29.
Efficiency of Sewage Settling Tanks.* M. B. Tark. (Paper read before Am. Soc. Mun. Impvts.) Can. Engr. Feb. 12, '29.
Milwaukee Sewage Disposal Plant.* Darwin W. Townsend. (Paper read before San. Eng. Div.) Am. Soc. C. E. Mar., '29.
New Jersey Sewage Experiments. (Progress Report of Comm. San. Eng. Div.) Am. Soc. C. E. Mar., '29.
Prevention of Odor Nuisance in the Disposal of Creamery Wastes by Treatment with Chlorine Preliminary to Broad Irrigation.* E. A. Reinke. West. Constr. N. Feb. 10, '29.
Sludge Disposal in England. Public W. Feb., '29.
The Beccari Plant at Scarsdale, N. Y. Arthur Boniface. (Paper read before Int. Assoc. Street San. Officials.) Mun. N. & W. W. Feb., '29.
Water Works and Sewerage Systems. A. E. Berry. Can. Engr. Feb. 12, '29.
Beiträge zur Abwasseruntersuchung.* (Contributions on Sewage Studies.) H. Bach. Gesund. Ing. Feb. 2, '29.

x. Miscellaneous

Sanitary or Public Health Engineer? C. M. Spofford. Am. Soc. C. E. Mar., '29.

K. Heat Engines

b. Steam Turbines

Saugverluste und Schaufelwirkungsgrad in Aktionsdampfturbinen.* (Suction Loss and Blade Efficiency in Impulse Steam Turbines.) M. Koenig. Schw. Bauz. Feb. 2, '29.

c. Gas and Oil Engines

Le Moteur Rupa à Combustion Interne à Charbon Pulvérisé.* (The Rupa Pulverized Coal, Internal Combustion Engine.) Ch. Dantin. Gen. Civ. Feb. 9, '29.

L. Electricity

a. Production of Electricity

2. Magneto and Dynamo-Electric Machines
Le Groupe Turbo-Alternateur de 110 000 KW de la Brooklyn Edison Co., à New-York.* (The 110 000 KW Turbo-Alternator Group of the Brooklyn Edison Co., in New York). Gen. Civ. Feb. 16, '29.

b. Distribution and Transmission of Electricity

1. Power Plants
The Isle Maligne Power Station on the Saguenay River.* Engr. Feb. 15, '29.
6. Safety of Electric Distribution Systems—Laws and Regulations
1927 Lightning Experience on the 132-KV.* Philip Sporn. A. I. E. E. Feb., '29.

d. Mechanical Uses of Electricity

3. Welding
Données Nouvelles en Matière de Charpentes Métalliques. Les Charpentes Soudées, à l'Etranger et en France.* (New Data on Metallic Framing Material. Welded Frames, Abroad and in France.) Godard. Gen. Civ. Feb. 2, '29.

f. Signals and Communication

Purified Textile Insulation for Telephone Central Office Wiring.* H. H. Glenn and E. B. Wood. A. I. E. E. Feb., '29.
Radio Guides the Airway Traveler.* Sci. Am. Mar., '29.
Uses of Radio as an Aid to Air Navigation.* J. H. Dellinger. A. I. E. E. Feb., '29.

M. Architecture

a. Educational, Government and Scientific Buildings

Konstruktionsentwurf und Bau der Sängerbundesfesthalle Wien 1928.* (Design Plan and Construction of the Singing Society Auditorium, Vienna, 1928.) Eduard Erhart. Oest. Ing Arch. Ver. Jan. 18, '29.

b. Business and Commercial Buildings

Les Halles du Nouveau Marché de Francfort-sur-le-Main.* (The New Market Halls for Frankfort am Main.) Gen. Civ. Feb. 9, '29.
The 450-Ft. Foshay Tower at Minneapolis.* Gottlieb R. Magney. Eng. N. R. Mar. 7, '29.

c. Residences, Hotels

Sir Francis Drake Hotel, San Francisco.* West. Constr. N. Feb. 25, '29.

d. Storage Buildings

L'Entrepôt Frigorifique de Bordeaux-Bassens.* (The Bordeaux-Bassens Cold Storage Transshipping Warehouse.) Auguste Pawlowski. Gen. Civ. Feb. 23, '29.

e. Hospitals and Asylums

Die Heilstätte Strengberg in Niederösterreich.* (The Strengberg Sanatorium in Lower Austria.) Max Setz. Oest. Ing. Arch. Ver. Feb. 1, '29.
Erweiterungsbau des Pathologischen Instituts der Tierärztlichen Hochschule in Berlin.* (Enlargement of the Pathologic Institute of the Veterinary College in Berlin.) W. Wolff. Z. d. Bauver. Feb. 6, '29.

i. Fire and Earthquake Protection

The Relation Between Earthquakes and Engineering Substructures. Discussion: Fred A. Noetzli. Am. Soc. C. E. Mar., '29.

x. Miscellaneous

Tests of Traffic-Vibration Dampers for Buildings.* Stephen E. Slocum. Eng. N. R. Mar. 7, '29.

O. Administration. Legislation. Economics. Statistics

b. Economic Questions of a General Character, Valuations, Etc.

Water Works Valuation for Rate Making Purposes.* E. B. Black. Am. W. W. Assoc. Feb., '29.

d. Administrative and Financial Management of Means of Communication

2. Routes and Roads

Responsibility of the Highway Engineer to the Public. A. R. Hirst. Discussion: W. H. Connell. (Paper read before Highway Div.) Am. Soc. C. E. Mar., '29.
Status and Progress in the Art of Highway Engineering. (Report of Comm. Highway Div.) Am. Soc. C. E. Mar., '29.
Organization, Administration and Finance.* H. C. Whitehurst. Mun. N. & W. W. Feb., '29.

5. Railroads and Street Railways

Report of Committee on Standardization. (A. R. E. A.) Ry. Age Mar. 6, '29 (Daily Ed.).
Report on the Economics of Railway Labor. (A. R. E. A.) Ry. Age Mar. 8, '29 (Daily Ed.).
Report on Economics of Railway Operation. (A. R. E. A.) Ry. Age Mar. 8, '29.
Report on Records and Accounts. (A. R. E. A.) Ry. Age Mar. 8, '29 (Daily Ed.).
Report on Uniform General Contract Forms. (A. R. E. A.) Ry. Age Mar. 6, '29 (Daily Ed.).

Q. Surveying and Geodesy

Surveys for Bridge Locations—Port of New York Authority.* Robert Hoppen, Jr., and A. H. Morrill. Discussion: C. W. Hudson. (Paper read before Sur. & Map. Div.) Am. Soc. C. E. Mar., '29.
Symposium on Construction and Location Surveys. (Read before Sur. & Map. Div.) Am. Soc. C. E. Mar., '29.
Triangulation Surveys for Carquinez Bridge, California.* G. J. Calder. (Paper read before Sur. & Map. Div.) Am. Soc. C. E. Mar., '29.
Weighing the Earth from a Submarine.* William Bowie. Sci. Am. Mar., '29.

S. City Planning

African Town Sanitation and Layout.* W. B. Acton. Inst. Mun. & Co. Engrs. Serial beginning Feb. 19, '29.
Imagination in City Planning. Discussion: Stephen Child. Am. Soc. C. E. Mar., '29.
Relation of the Landscape Architect to the Allied Professions Engaged in City Planning. Discussion: Frederic A. Delano, Stephen Child, and William T. Lyle. Am. Soc. C. E. Mar., '29.
Relation of the Lawyer to the Other Professions Engaged in City Planning. Alfred Bettman. Discussion: Francis J. Mulvihill. (Paper read before City Plan. Div.) Am. Soc. C. E. Mar., '29.
Status and Progress in the Art of City Planning. Stephen Child. (Paper read before City Plan. Div.) Am. Soc. C. E. Mar., '29.
Westchester County Planning and Park System.* Jay Downer. (Paper read before City Plan. Div.) Am. Soc. C. E. Mar., '29.
Generalsiedlungsplan Essen.* (General Housing Plan in Essen.) Martin Pfannschmidt. Z. d. Bauver, Serial beginning Jan. 30, '29.
Die Neugestaltung des Paradeplatzes und anderer Verkehrsplätze in Zurich.* (The Rearrangement of Paradeplatz and Other Traffic Centers in Zurich.) Carl Jegher. Schw. Bauz. Feb. 9, '29.

Engineering Societies Employment Service

The Engineering Societies Employment Service is under the joint management of the National Societies of Civil, Mining, Mechanical, and Electrical Engineers. A Chicago office is maintained in co-operation with the Western Society of Engineers, and a San Francisco office, in co-operation with the Engineers' Club of San Francisco and the California Section of the American Chemical Society. The Service is available only to the several memberships and is maintained by contributions from the Societies and their individual members who are directly benefited.

Offices.—Eastern Office, 31 West 39th Street, New York, N. Y., Walter V. Brown, Manager; Chicago Office, 205 West Wacker Drive, 1216 Engineering Building, Chicago, Ill., A. Krauser, Manager; and San Francisco Office, 57 Post Street, Room 715, San Francisco, Calif., Newton D. Cook, Manager.

Men Available.—Under this heading, brief announcements will be published without charge. These announcements will not be repeated, except on request received after an interval of one month. Names and records will remain in the active files of the Service for a period of three months, and are renewable on request. Notices for *Proceedings* should be addressed to Employment Service, 31 West 39th Street, New York, N. Y., and should be received prior to the first of the month.

Opportunities.—A Bulletin of engineering positions available is published weekly and may be obtained by members of the Societies concerned at a subscription rate of $3 per quarter, or $10 per annum, payable in advance. Positions which are not filled promptly as a result of publication in the Bulletin, may be announced herein.

Voluntary Contributions.—Members obtaining positions through the medium of this Service are invited to co-operate with the Societies in the financing of the work by nominal contributions made within thirty days after placement, on the basis of 1½% of yearly salary; temporary positions (of one month or less), 3% of total salary received. The income contributed by the members, together with the finances appropriated by the four Societies named, will be sufficient, it is hoped, not only to maintain but to increase and extend the Service.

Replies to Announcements.—Replies to announcements published herein, or in the Bulletin, should be addressed to the key number indicated in each case, with two two-cent stamps attached for re-forwarding, and forwarded to the Employment Service at the address given. Replies received by the Service after the positions to which they refer have been filled, will not be forwarded.

MEN AVAILABLE

ENGINEER, PROFESSOR, Assoc. M. Am. Soc. C. E.; C. E. 1918; age 36; single. Three years in present position as instructor in stresses, steel design and detailing, and concrete courses. Previous practical experience, six years in railway bridge departments. A–791.

CIVIL ENGINEER, M. Am. Soc. C. E.; technical graduate; married. Twenty years' engineering experience, extensive surveys, heavy railroad construction, earthwork, bridges. Engineer in charge, valuation, large utility property; extensive street, interurban railway experience. At present, in executive position, large utility property. Will consider opening railway, industry, contractor, private business. Interview solicited. A–1864.

HYDRAULIC AND POWER ENGINEER, Jun. Am. Soc. C. E.; married. Four years, hydraulic, power, navigation investigations, research, economic, and in-

terconnection studies. Federal power and army engineer reports; sixteen months, squad boss, barge canal investigation. Three years, reclamation service, stream gauging, surveys, construction, drafting, design, and estimates. Desires responsible position with consulting engineer or power company on investigation work. B–741.

CHIEF ENGINEER, GENERAL SUPERINTENDENT, PRODUCTION AND CONSTRUCTION MANAGER, M. Am. Soc. C. E. Twenty years' experience, industrial plants, incidental structures, steam, water power. Capable handling preliminary layouts, conferences determine logical plans; later organize force, prepare plans, estimates, specifications, contracts; organize field force, building work. Last three years in charge, design, constructing, equipping plant. B–3914.

CONSTRUCTION SUPERINTENDENT OR ENGINEER, Assoc. M. Am. Soc. C. E.; age 45; married. Twenty years' experience as engineer and superintendent on power plant, municipal, industrial, and house building. Location, Eastern part of United States or Canada. B–4683.

CIVIL ENGINEER, M. Am. Soc. C. E.; age 48; single. Twenty-five years' varied engineering and construction experience; resident and construction engineer on railroads and public utilities; superintendent of building construction. Interested in connection with contractors or engineering firm. Location, United States. B–4802.

ENGINEER, Jun. Am. Soc. C. E.; thoroughly capable of handling all phases of sub-division work, planning, mapping, and computing; also experienced party chief. Available at once. New Jersey or New York City only. B–9908.

CIVIL ENGINEER, Jun. Am. Soc. C. E.; graduate, Cornell University. Three years' experience with reputable contractors, both field and office, on subway construction, street paving, and drainage of all classes, State road construction, sub-surface work, and small buildings and foundations. Employed at present, but available on short notice. Location, Metropolitan District. C–953.

CIVIL ENGINEER-EXECUTIVE, Assoc. M. Am. Soc. C. E.; registered engineer, State of Virginia; age 40; married. Nineteen years' broad experience in municipal engineering and administration; waterworks, sewers, paving, highways, city planning, construction, etc. Capable executive accustomed to responsibilities. Desires connection with municipality, consulting engineer, or contractors. C–1435.

EXECUTIVE, Assoc. M. Am. Soc. C. E.; graduate civil engineer; age 39; experienced in engineering management, organization, operating, research, wage setting, investigations, efficiency, personnel, safety, warehousing, fleet operation. Open for engagement. C–2015.

ENGINEER, PROFESSOR, Assoc. M. Am. Soc. C. E.; B. S. C. E., 1922; C. E. 1928; age 30; married. Two years, engineering drawing instructor; total teaching, three years. One year, surveying, construction. Five years, steel industry, analyzing, designing, testing statically indeterminate structures. Desires permanent teaching or research position in mechanics or structural engineering. C–5354.

CIVIL ENGINEER, Assoc. M. Am. Soc. C. E.; registered structural engineer, State of Illinois; age 42; married. Twenty years' successful practice as civil and consulting engineer on flood control, drainage, highways, highway structures, pavements, and sewers. Thoroughly experienced in reinforced concrete as applied to flood control. Now employed, but wishes change of location. C–5480.

STRUCTURAL ENGINEER, Assoc. M. Am. Soc. C. E.; college graduate; age 35. Fourteen years' general experience and during past five years in charge of all structural design for large oil company, including stills, tanks, terminals, wharves, boiler houses, roadways, sewers, separators, etc.; desires change to position offering greater possibilities. Executive ability and knowledge of French and German. C–5677.

GRADUATE CIVIL ENGINEER, M. Am. Soc. C. E. Twenty-five years' experience on design, construction, and supervision; water purification works, concrete reservoirs, elevated concrete tanks, concrete buildings, aerators, pumping stations, pipe lines, etc. Twenty years, responsible charge; seven years, contractors' superintendent; understands organization to obtain results. Desires permanent position with consulting engineer, municipality, contractor, or industrial company. C–5688.

CIVIL ENGINEER, Assoc. M. Am. Soc. C. E.; 1916 graduate; age 37. Eleven years' building experience, including two years as contractors' field superintendent; Four years as contractors' assistant office engineer; one year as owners' chief engineer on hospital construction. Desires position with engineer or contractor on design and construction. C–5695.

MUNICIPAL OR RESIDENT ENGINEER, Jun. Am. Soc. C. E.; graduate civil engineer; age 32; married. Eight years' responsible charge of highway, sewers, and street paving. Experience in both field and office. Will consider any position with proper opportunity with consulting engineer, contractor, or sales. Location, immaterial. C–5705.

CONSTRUCTION ENGINEER, SUPERINTENDENT OR MANAGER, M. Am. Soc. C. E.; age 46; graduate, Stevens Institute; licensed engineer, New Jersey. Twenty-five years' experience in all kinds of building construction; designing, estimating, constructing in reinforced concrete, steel, and wood; factories, office, banks, schools. Fifteen years in active charge. C–5709.

ENGINEER, PROFESSOR, Jun. Am. Soc. C. E.; B. S. in general engineering; M. S., hydraulics, sanitary engineering; age 28; married. One year, general engineering experience (field, office). One year, principal, high school; Two years, head, engineering drawing, descriptive geometry, surveying (one year included mechanics). Desires similar position, university or growing technical college, with opportunity for research work. C–5726.

CONSTRUCTION ENGINEER, Assoc. M. Am. Soc. C. E.; age 30; married. Six years' varied experience on construction of dams,

tunnels, power houses, high-head penstocks, and pipe lines. Successful plant design on five dams, gravity, multiple-arch, and simple arch. Present job near completion. Will go anywhere. C–5737-93–A–7.

CIVIL ENGINEER, Jun. Am. Soc. C. E.; graduate; age 24; married. Two years' experience on large bridge construction, foundations, rock excavation, concreting, and general field work, desires connection with construction firm. Now employed. Location in East preferred. C–5753.

CIVIL ENGINEERING TEACHER, Jun. Am. Soc. C. E.; M. S. in C. E., specializing in structures; married. Three years' teaching experience, strength of materials, mechanics, surveying, mathematics, structural design, statically indeterminate structures. Three years on construction and structural design. Available, June, 1929. C–5763.

GRADUATE STRUCTURAL ENGINEER, Jun. Am. Soc. C. E.; age 26; experience in cement plant and industrial building design; also one year in graduate research work. Eastern location preferred. Available June 1. C–5792.

CIVIL ENGINEER, Assoc. M. Am. Soc. C. E.; age 39; married. Fourteen years' experience in highway work, both country and State work. Interview solicited. Available on short notice. C–5794.

BRIDGE AND STRUCTURAL ENGINEER, Assoc. M. Am. Soc. C. E.; graduate, Mass. Inst. of Tech. Ten years' experience design of bridges, buildings, difficult foundations, and managing executive for contractors; able to design and direct design of important structures. Now employed, desires new connection with good opportunity and permanent future with railway, highway, or high-grade contracting organization. C–5803.

Membership

(From March 6 to April 2, 1929)

Additions

Members		Date of Membership.
ABBETT, Robert William. Constr. Engr. and Asst. Gen. Supt., R. H. Hidey, Gen. Motors Bldg. (Res., 1530 Seward Ave., Apartment 108), Detroit, Mich	Jun.	Jan. 14, 1929
ADAMS, Merton Stephen. 28 The Crescent, Montclair, N. J.	Jun.	Nov. 12, 1928
ALBERT, Frank Meyer. Cartographic Draftsman, U. S. Coast and Geodetic Survey, Washington, D. C.	Assoc. M.	Mar. 11, 1929
ALLEN, James Hale. With Morris Knowles, Inc., 507 Westinghouse Bldg., Pittsburgh, Pa.	Assoc. M.	Mar. 11, 1929
ALLING, Kenneth Davenport. 148 Colonial Rd., Stamford, Conn.	Jun.	Mar. 11, 1929
ALLISON, William Henry. Instr., Civ. Eng., Sheffield Scientific School, Yale Univ. (Res., 186 St. Ronan St.), New Haven, Conn.	Assoc. M.	Mar. 11, 1929
ARIZPE, Rudolph Viesca. 619 South Leona St., San Antonio, Tex.	Jun.	Oct. 1, 1928
ARNTSON, Julian Arthur. Senior Engr., City Eng. Dept. (Res., 1019 South Lawrence St.), Tacoma, Wash.	Assoc. M. M.	Oct. 8, 1918 Mar. 11, 1929
AULL, James Long. 527 Thirteenth Ave., S. E., Minneapolis, Minn.	Jun.	Oct. 1, 1928
BAKER, Donald McCord. Cons. Engr., 1017 Central Bldg., Los Angeles, Calif.	Jun. Assoc. M. M.	Dec. 3, 1913 Jan. 19, 1920 Mar. 11, 1929
BARTLETT, Willis Henry. Draftsman, State Div. of Highways, Redding (Res., Paxton), Calif.	Jun.	Oct. 1, 1928
BARTOW, Leslie W. Asst. Engr., San. Dist. of Chicago (Res., 1400 East 53d St.), Chicago, Ill.	Jun. Assoc. M.	Oct. 15, 1923 Mar. 11, 1929
BEAR, Roger Jones. Asst. Engr., Cincinnati Union Terminal Co. (Res., 2983 Springer Ave.), Cincinnati, Ohio	Assoc. M.	Nov. 12, 1928
BELL, Carter Louis. Supt. of Constr., Stone & Webster Eng. Corporation, 49 Federal St., Boston, Mass.	Assoc. M.	Mar. 11, 1929
BERNHANG, Samuel. Senior Structural Draftsman, Dept. of City Transit (Res., 3138 French St.), Philadelphia, Pa.	Jun. Assoc. M.	Nov. 15, 1926 Mar. 11, 1929
BISSET, John Clifford. With Myers, Noyes & Forrest, 1107 Mercantile Bank Bldg., Dallas, Tex.	Jun. Assoc. M.	Dec. 15, 1924 Mar. 11, 1929
BLAKELEY, Harry Edward. Dept. of Civ. Eng., Univ. of Tennessee, Knoxville, Tenn.	Jun.	Nov. 12, 1928
BLONDIN, John Ralph. Care, Modjeski & Chase, 730 Twenty-first St., Detroit, Mich.	Jun.	Oct. 1, 1928
BOOTH, Donald Prentice. 2d Lieut., Corps of Engrs., U. S. A., 29th Engrs., Fort Humphreys, Va.	Jun.	Mar. 11, 1929
BOWKER, Bradford Mitchell. Draftsman, Hardy S. Ferguson, 200 Fifth Ave., New York, N. Y.	Jun.	Mar. 11, 1929
BRAY, Fred Leroy. 2400 West 7th St., Fort Worth, Tex.	Jun.	Oct. 1, 1928
BREUER, William. Engr., Day & Zimmermann, Inc., 112 North Broad St. (Res., 5828 North Marshall St., Tabor), Philadelphia, Pa.	Jun. Assoc. M.	Nov. 21, 1921 Mar. 11, 1929
BRONSON, Joseph Chandler. Care, A. P. Green Fire Brick Co., Mexico, Mo.	Jun. Assoc. M.	Mar. 14, 1927 Mar. 11, 1929
BRUHN, Elmer Franklin. Associate Prof., Civ. Eng. and Mechanics, Colorado School of Mines, Box 301, Golden, Colo.	Jun. Assoc. M.	May 19, 1924 Mar. 11, 1929
BUXTON, Frank Eugene. Insp., New England Power Co., 11 Grafton St., Shrewsbury, Mass.	Jun.	Mar. 11, 1929
CARLSON, Roy Washington. Testing Engr., Los Angeles County Flood Control Dist., 125 Stockbridge Ave., Alhambra, Calif.	Jun.	Nov. 12, 1928
CARTER, Ike Newton. Asst. Prof., Civ. Eng., Univ. of Idaho Moscow, Idaho	Assoc. M.	Mar. 11, 1929
CATLETT, Richard Henry. Mgr., Calcium and Lime Products Div., North Am. Cement Corporation, 285 Madison Ave., New York, N. Y.	Affiliate	Mar. 11, 1929
CATLIN, Harold Burd. Asst. Chf. Engr., National Sugar Refining Co. of New Jersey, Edgewater, N. J.	Jun. Assoc. M. M.	April 2, 1912 Mar. 14, 1916 Mar. 11, 1929
CAULKINS, Daniel Peck, Jr. Head of Foundation Dept., The M. W. Kellogg Co., Jersey City, N. J. (Res., 437 Halsey St., Brooklyn, N. Y.	Assoc. M.	Mar. 11, 1929
CHARLES, Seward. Appraisal Engr., Bureau of Internal Revenue, Income Tax Unit (Res., 1324 Randolph St., N. W.), Washington, D. C.	M.	Mar. 11, 1929
COLLINS, William Harold. Civ. and Structural Engr., 601 Kirby Bldg., Houston, Tex.	Assoc. M.	Dec. 3, 1928
COLVIN, George Foster. Care, Lago Petroleum Corporation, Apartado 172, Maracaibo, Venezuela	Jun.	Oct. 1, 1928
CONWAY, Edward Power. Pres., Phœnix-Tempe Stone Co., Box 1361, Phœnix, Ariz.	Affiliate	Mar. 11, 1929
COUGHLIN, Thomas Francis. 2264 Sixth Ave., Troy, N. Y.	Jun.	Dec. 3, 1928

MEMBERS—(*Continued*)

		Date of Membership.
CRANDALL, Howard Lawrence. Structural Engr., Herman F. Doeleman, 516 North Charles St., Baltimore, Md.	Assoc. M.	Mar. 11, 1929
DAWSON, Louis Young, Jr. Engr. and Contr. (Dawson Eng. Co., Inc.), (Res., 13 Church St.), Charleston, S. C.	Assoc. M.	Mar. 11, 1929
DELUNA, Albert Edward. Y. M. C. A., Flushing, N. Y.	Jun.	Oct. 1, 1928
DOLLIVER, Emerson. San. Engr., Wallace & Tiernan Co., Inc. 411 Lloyd Bldg., Seattle, Wash.	Jun. Assoc. M.	Jan. 14, 1924 Mar. 11, 1929
DONOHUE, Jerry. Cons. and Superv. Engr. (The Jerry Donohue Eng. Co.), (Res., 502 Ontario Ave.), Sheboygan, Wis.	M.	Mar. 11, 1929
EDELMAN, Joshua Henry. 3075 Heath Ave., New York, N. Y.	Jun.	Nov. 12, 1928
FAIRCLOTH, James Manning. Instr., Univ. of Alabama, University, Ala.	Jun.	Mar. 11, 1929
FARIS, Orville Alva. Engr., Texas Board of Water Engrs. and U. S. Dept. of Agriculture, Box R, Capitol Station, Austin, Tex.	Assoc. M. M.	Mar. 9, 1920 Mar. 11, 1929
FINLAY, Sam. Instrumentman, New-Kanawha Power Co., Glen Ferris, W. Va.	Jun.	Dec. 3, 1928
FITZGERALD, Walter Francis Anthony. 3426 Ninety-second St., Jackson Heights, N. Y.	Jun.	Dec. 3, 1928
FOLKENSON, Howard Henry. 42 South 10th St., Easton, Pa.	Jun.	Nov. 12, 1928
GALBRAITH, Augustus William de Rohan. City Engr., City Council Offices, Christchurch, New Zealand	M.	Jan. 14, 1929
GORDON, Saul Cantor. Civ. Engr., Board of Transportation, 49 Lafayette St. (Res., 110 West 76th St.), New York, N. Y.	Jun. Assoc. M.	May 19, 1924 Mar. 11, 1929
GOTWALS, Eugene Warren. Res. Engr., Jackson County Highway Dept., Box 321, Raytown, Mo.	Jun. Assoc. M.	Oct. 12, 1925 Aug. 27, 1928
GRACE, William Roy. Res. Engr., State Highway Dept., Box 683, Holdenville, Okla.	Assoc. M.	Mar. 11, 1929
HALL, Quincy Allen. Owner, Quincy A. Hall Laboratory, 356 Cedar St., St. Paul, Minn.	Assoc. M.	Mar. 11, 1929
HALLBERG, Oscar Hermon. Asst. City Engr., City Engr.'s Office, 503 City Hall, Tacoma, Wash.	M.	Mar. 11, 1929
HAND, William Essex. Chemist and Asst. Plant Supt., James B. Berry's Sons Co., Waterloo, Ark.	Jun.	Mar. 11, 1929
HARKNESS, Daniel Hoover. Instr., Civ. Eng., Univ. of Nebraska, Lincoln, Nebr.	Jun.	Mar. 11, 1929
HARTIGAN, Augustus Fisher. Pres., A. F. Hartigan Co., 823 First Trust Bldg., Hammond, Ind.	Assoc. M.	Mar. 11, 1929
HARWOOD, Hugh Casey. Engr. and Supt. of Constr., Harwood Constr. Co. (Res., 317 Fifty-third St.), Newport News, Va.	Assoc. M.	Mar. 11, 1929
HASELEY, Paul Fred. Res. Engr., City of North Tonawanda (Res., 307 Bryant St.), North Tonawanda, N. Y.	Jun.	Dec. 3, 1928
HIGHFILL, James Bodenheimer. Chf. of Party and Const. Engr. with County Engr., Osage County, Pawhuska, Okla.	Jun.	Mar. 11, 1929
HINMAN, Jack Jones, Jr. Associate Prof. of Sanitation, Univ. of Iowa, Iowa City, Iowa.	Assoc. M.	Mar. 11, 1929
HOFF, John Edward. Box 1416, Abilene, Tex.	Jun.	Dec. 3, 1928
HOLMES, Edward Henry. 4 Elm St., Kingston, Mass.	Jun.	Dec. 3, 1928
HOOK, Addison Eastwick. Insp., The J. E. Greiner Co. (Res., 1519 Park Ave.), Baltimore, Md.	Jun.	Jan. 14, 1929
INGRAM, Temple Byrn. Office Engr., Guy R. Johnston, Box 217, Archer City, Tex.	Jun.	Mar. 11, 1929
IVARSSON, Sigmund. Structural Engr., Stuart & Wheatley, 431 Walker Bldg., Seattle, Wash.	Assoc. M.	Oct. 1, 1928
JAMESON, John Alexander, Jr. Box 471, Bingham, Me.	Jun.	Mar. 11, 1929
JOYNER, Calvin Nicolas. Chf. Asst. Engr., British Municipal Council, Tientsin, China.	Jun. Assoc. M.	April 18, 1927 Jan. 14, 1929
LAWSON, Victor Fremont. With F. L. Heughes & Co., Inc., 1195 Genesee Park Boulevard, Rochester, N. Y.	Assoc. M.	Mar. 11, 1929
LEDBETTER, John Jackson, Jr. Office Engr., Floyd & Lochridge, 531 Wilson Bldg., Dallas, Tex.	Jun. Assoc. M.	June 7, 1926 Mar. 11, 1929
LEONE, Peter Joseph. Pres. and Gen. Mgr., Municipal Constr. Co., Inc., 607 Washington Sq. Bldg., Philadelphia, Pa.	Affiliate	Mar. 11, 1929
LEVIN, Louis Frank. County Highway Engr., Chippewa County Court House (Res., 904 John St.), Saulte Ste. Marie, Mich.	Assoc. M.	Mar. 11, 1929
LOCKWOOD, Charles Pelham. Asst. Engr., Warren E. Darrow (Res., 2032 Wynnton Drive), Columbus, Ga.	Jun.	Mar. 11, 1929
LONG, John Audley. County Engr., Lee County, Box 1895, Fort Myers, Fla.	Assoc. M.	Mar. 11, 1929
MACELWEE, Roy Samuel. Commr. of Port Development, City of Charleston, 92 East Bay, Charleston, S. C.	Affiliate	Mar. 11, 1929
MACZKO, Albert Stephen. With The Little River Redwood Co., 103 Park Ave., New York, N. Y. (Res., 283 Main Ave., Passaic, N. J.)	Jun.	Mar. 11, 1929
MCCORMICK, Frank James. Asst., Agri. Eng. Experiment Station, Iowa State Coll., Room 118, Agri. Eng. Bldg., Iowa State Coll., Ames, Iowa.	Jun.	Mar. 11, 1929

MEMBERS—(*Continued*)

	Date of Membership.
MANTHAI, Frederick Stephen. 274 St. Lawrence Ave., Buffalo, N. Y.	Jun. Mar. 11, 1929
MARIN, Joseph. Research Graduate Asst., Univ. of Illinois, Room 220, Coll. of Eng., Univ. of Illinois, Urbana, Ill.	Jun. Mar. 11, 1929
MARKS, Constant Roberts, 3d. 275 Marshall St., Gary, Ind.	Jun. Oct. 1, 1928
MATLOCK, Michael Allan. Structural Engr., McClintic-Marshall Co.; 5739 Baum Boulevard, Pittsburgh, Pa.	Jun. Mar. 11, 1929
MATTHEWS, Medwin. Asst. Engr. of Design, Board of Water Supply, New York (Res., 8719 Seventy-eighth St., Woodhaven), N. Y.	Jun. Sept. 10, 1923 Assoc. M. Mar. 11, 1929
MOCK, Alvin McGee. Asst. Civ. Engr., Ohio Fuel Gas Co. (Res., 137 Twelfth Ave.), Columbus, Ohio.	Jun. Nov. 12, 1928
MONTGOMERY, Vol Hardwicke. Engr. and Builder (Montgomery & Pinson), Box 471, Hamlin, Tex.	Assoc. M. Mar. 11, 1929
MROZEK, Edward George. 479 Belmont Ave., Newark, N. J.	Jun. Nov. 12, 1928
MUESER, William Henry. Res. Engr., Moran, Maurice & Proctor, 342 Madison Ave., Room 1126 D, New York, N. Y.	Assoc. M. Mar. 11, 1929
NELSON, Frederick Grant. Care, The Dorr Co., 310 South Michigan Ave., Chicago, Ill.	Assoc. M. Mar. 11, 1929
NORCOM, George Dusenbury. San. Engr., Federal Water Service Corporation, 27 William St., Room 1101, New York, N. Y.	Assoc. M. Mar. 11, 1929
OAKES, Ivan Edward. Gen. Mgr., Pacific Livestock Co., Burns, Ore.	M. Mar. 11, 1929
OAKLEY, Kenneth Harrington. Structural Designer, Nickel Plate R. R., 950 Terminal Tower Bldg., Cleveland, Ohio.	Jun. Mar. 11, 1929
OBERMULLER, John Henry. Asst. Engr., Div. of Highways, Dept. of Public Works (Res., 724 Thirty-fourth St.), Sacramento, Calif.	Assoc. M. Mar. 11, 1929
OHLGART, Herman. 276 Franklin St., Bloomfield, N. J.	Assoc. M. Mar. 11, 1929
OLIVER, William Albert. Instr., Civ. Eng., Case School of Applied Science (Res., 1719 East 81st St.), Cleveland, Ohio.	Jun. Mar. 16, 1925 Assoc. M. Mar. 11, 1929
OREM, Hollis Milon. Junior Engr., U. S. Geological Survey, 606 Post Office Bldg., Portland, Ore.	Jun. Mar. 11, 1929
OSTHOFF, Oscar Paul. Pres., Osthoff-Peterson Co., Inc., 110 East Wisconsin Ave., Milwaukee, Wis.	M. Mar. 11, 1929
PAGE, Nolan. 447 South Summit St., Iowa City, Iowa.	Jun. Jan. 14,1929
PALMER, Cyrus Edmund. Associate Prof., Architectural Eng., Univ. of Illinois (Res., 1007 Douglas Ave.), Urbana, Ill.	M. Mar. 11, 1929
PETERSON, Frederick Gust. Supt. of Constr., North Centarl Co., Starbuck, Minn.	Jun. Mar. 11, 1929
PLUMMER, Raymond Benton. 2827 Burling Ave., Chicago, Ill.	Jun. Oct. 1, 1928
PRETTYMAN, Edward. Room 923, Mills Bldg., El Paso, Tex.	Assoc. M. Oct. 1, 1928
PRITCHETT, Henry Carr. With U. S. Geological Survey, Box 162, University Station, Tucson, Ariz.	Assoc. M. Mar. 11, 1929
QUINONES, Salvador. Contr. Engr., Box 564, Rio Piedras, Porto Rico.	Jun. July 12, 1926 Assoc. M. Mar. 11, 1929
ROBERTS, Glen Wallace. 1812 Clark Bldg., Pittsburgh, Pa. (Res., Elizabeth, W. Va.).	Jun. Oct. 1, 1928
SANDBECK, Hans Christian. Asst. to Structural and Hydr. Engr., Central Hudson Gas & Elec. Corporation (Res., 27 Holmes St.), Poughkeepsie, N. Y.	Jun. June 7, 1926 Assoc. M. Mar. 11, 1929
SCHLEY, Julian Larcombe. Lt. Col., Corps of Engrs., U. S. A., Balboa Heights, Canal Zone.	M. Mar. 11, 1929
SCHMIEDICKE, Ferdinand Conrad. Care, Chirique Land Co., Corredor, Chirique, Panama.	Jun. Oct. 1, 1928
SCHOLER, Eben Ellsworth. Field Engr., The Texas Co., 210 Dwight Bldg., Kansas City, Mo.	Assoc. M. Mar. 11, 1929
SCHWING, Russell Louis. Care, Metal Aircraft Corporation, Eng. Dept., Lunken Airport, Cincinnati, Ohio.	Jun. Mar. 11, 1929
SIMONS, Edward Widman. Engr., Redwood Mfrs. Co. of San Francisco (Res., 140 Woodland Ave.), San Francisco, Calif.	Jun. Mar. 11, 1929
SIMPSON, Charles Francis. Care, Portland Cement Assoc., 1306 Athletic Club Bldg., Dallas, Tex.	Assoc. M. Mar. 11, 1929
SMALL, Herbert Wesley, Jr. Chf. Engr., Alcoa Power Co., Ltd., Arvida, Que., Canada.	M. Mar. 11, 1929
SMITH, Herbert Campbell. Engr., The Sanitation Corporation; 306 Riverview Ave., Drexel Hill, Pa.	M. Mar. 11, 1929
SMITH, Peter Anthony. Treas., The A. P. Smith Mfg. Co., East Orange (Res., 66 Stanley Rd., South Orange), N. J.	Affiliate Mar. 11, 1929
STEWART, Lowell O. Asst. Prof., Civ. Eng., Iowa State Coll. (Res., 618 Burnett Ave.), Ames, Iowa.	Assoc. M. Mar. 11, 1929
SUPPIGER, Edward Washington. 264 Taney St., Gary, Ind.	Jun. Oct. 1, 1928
SUTHERLAND, Edgar Stewart. Dept. of Civ. Eng., Univ. of Minnesota, Minneapolis, Minn.	Jun. Oct. 1, 1928
SWEENEY, Ralph Crissman. San. Engr., City of Toledo, 210 Safety Bldg., Toledo, Ohio.	Assoc. M. Mar. 11, 1929
SYKES, Glenton Godfrey. Draftsman Designer with City Engr. (Res., 1622 East 4th St.), Tucson, Ariz.	Jun. July 12, 1926 Assoc. M. Oct. 1, 1928
TAYLOR, Edward Ralph. Asst. Res. Engr., John A. Roebling's Sons Co., Trenton (Res., 328 Central Ave., Leonia), N. J.	Assoc. M. Dec. 3, 1928

MEMBERS—(*Continued*)		Date of Membership.
THEOBALD, John Jacob. 519 West 143d St., New York, N. Y....	Jun.	Mar. 11, 1929
THRALL, Homer. 655 Illinois Ave., Clay St. Entrance, Ottawa, Ill.	Jun.	Oct. 1, 1928
VALDES, Agustin Manuel. With J. G. White Eng. Corporation S. en C. (Res., Republica de Colombia No. 66), City of Mexico, Mexico.....	Jun.	Mar. 11, 1929
VRYDAGH, Julian Alan. With Am. Bridge Co., Ambridge (Res., 323 Elizabeth St., Avalon), Pa.....	Assoc. M.	Mar. 11, 1929
WALLIN, Carl Jorgan. 601 West 110th St., Apartment 11-N, New York, N. Y.....	Jun.	Mar. 11, 1929
WELLS, Julius Ezekiel. Asst., Eng. Corps, P. R. R. (Res., 204 West Main St.), Uniontown, Pa.....	Jun.	Dec. 3, 1928
WHITENER, John Summie. Asst. Engr., Bureau of Eng., State Board of Health (Res., 1202 Cowper Drive), Raleigh, N. C....	Assoc. M.	Mar. 11, 1929
WIDMAYER, John Joseph. Pres., Widmayer Steel, Inc., Denrike Bldg., Washington, D. C.....	Assoc. M.	Mar. 11, 1929
WIEPKING, Christopher Armin. Laboratory Engr., Dept. of Public Works (Res., 608 Fifty-second St.), Milwaukee, Wis.....	Assoc. M.	Mar. 11, 1929
WURAFTIC, Joseph. Asst. San. Eng., State Board of Health (Res., 35 Mulberry St.), Providence, R. I.....	Jun.	Mar. 11, 1929

Reinstatements

MEMBERS	Date of Reinstatement
BLAIR, McCrea Parker.....	Mar. 22, 1929

Resignations

MEMBERS	Date of Resignation.
WELLS, Harry Artemas.....	Feb. 23, 1929
ASSOCIATE MEMBERS	
LAMB, Lyman Calvin.....	Mar. 5, 1929
JUNIOR	
KING, Maxon Horace.....	Feb. 18, 1929

Deaths

BREED, Oliver Clark. Elected Member, September 6, 1910; died December 28, 1928.
CORNELL, George Birdsall. Elected Junior, August 6, 1879; Member, October 6, 1886; died March 14, 1929.
ENTENMAN, Paul Max. Elected Junior, March 1, 1910; Associate Member, February 4, 1913; died March 29, 1929.
FOCH, Ferdinand. Elected Honorary Member, December 6, 1921; died March 20, 1929.
FULTON, James Edward. Elected Member, October 4, 1910; died December 6, 1928.
GERSBACH, Edward Charles. Elected Associate Member, June 1, 1909; died March 3, 1929.
HUDSON, William Douglas. Elected Member, March 16, 1925; died February 25, 1929.
MASON, George Cotner. Elected Junior, March 6, 1894; Associate Member, May 3, 1899; Member, September 1, 1908; died March 10, 1929.
POWELL, Robert Bruette. Elected Junior, April 12, 1926; died March 11, 1929.
RANDOLPH, Beverly Strother. Elected Member, May 2, 1888; died February 5, 1929.
REA, Samuel. Elected Member, June 4, 1884; Honorary Member June 6, 1921; died March 24, 1929.
SUNDSTROM, Carl Alfred. Elected Member, October 3, 1894; date of death unknown.

Total Membership of the Society, April 2, 1929.

Members	**5 577**	
Associate Members	**5 944**	
Corporate Members		**11 521**
Honorary Members		**14**
Juniors		**2 081**
Affiliates		**143**
Fellows		**7**
Total		**13 766**